Railway Age Gazette

FIRST HALF OF 1917—No. 22 SIXTY-SECOND YEAR

CLEVELAND NEW YORK—JUNE 1, 1917—CHICAGO WASHINGTON

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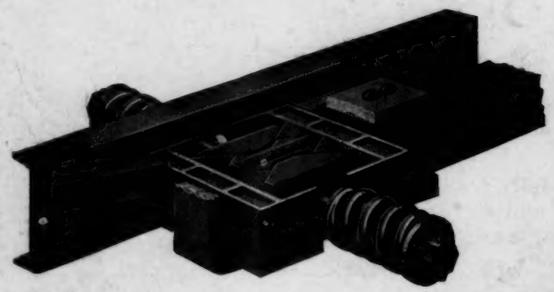

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Railway Age Gazette

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Accurate Grain Weighing

The weighing of grain into cars at the small country elevators is subject to inaccuracies from a variety of causes. These do not affect the correctness of freight charges as the latter are usually based on the weights obtained at the terminal or board of trade points, but the differences between these terminal weights and the shippers' weights are a common cause of claims presented against the railroad for alleged shortages. As the weighings at the large receiving elevators are carefully made under close supervision, the responsibility for any discrepancy can usually be placed on the originating point, barring any actual pilfering or leakage enroute. The administration of the claim, in consequence, implies a thorough investigation of the weighing equipment and methods at the local at these elevators and the sources of inaccuracy to which elevators. Those who are responsible for this work will be interested in a discussion of the methods of weighing grain the weighing is subjected, which appears on another page of this issue.

Why College Men Leave Railroads

C. H. Benjamin, dean of the schools of engineering at Purdue University, in analyzing, on another page, the occupations followed and remuneration received by engineering graduates, forcefully emphasizes one of the defects in railway organization which was noted in an editorial in the *Railway Age Gazette* of April 6. He concludes that college graduates give up their positions with the railroads after a few years because of the small salaries. One class from Purdue University which had been out of college for ten years was canvassed and the average compensation received by those engaged in the transportation industry was found to be $1,763, compared with a general average of $2,630. The latter figure, of course, included the students in transportation work and the general average was therefore reduced to that extent. In another class the graduates in the transportation field, after they had been out of college ten years, received an average salary of $1,960, as compared with a general average of $2,940. It is to be noted, moreover, that those engaged in transportation work were the lowest paid of all of the occupations considered, including manufacturing, construction work, mercantile work, public service, educational work, and consulting engineering. These figures are of special importance because Purdue University has made a specialty of railway engineering and also has a wide reputation because of its laboratories and their close relationship to the work of the American Railway Master Mechanics' and the Master Car Builders' Associations.

Curb Extravagant Station Design

The American railways lead the world in the efficiency with which they handle freight traffic. They also excel in the extravagance of their passenger service, facilities being provided both in trains and in stations far beyond those which the returns from the traffic justify. The roads are now considering ways to curtail passenger train service to conserve their revenues and equipment for other purposes. They may also well consider at this time the advisability of curbing many of the extravagances of station design. Even though a station is a public building which should be a credit to the city in which it is located, its primary purpose is to provide facilities for the handling of passenger traffic, and the return on the investment should come from the passenger business. The roads of America have been passing through a period of widespread development of passenger terminals during the last ten years and the end has not yet arrived. These projects require the expenditure of tremendous sums of money. In the development of the plans by the railway engineers and the consulting architects, features have been added in many instances which, while attractive, have caused additional expense without any further returns. The managements have been primarily to blame for they have yielded to the pleas of the local communities for buildings larger and more expensive than the traffic warranted. At the present time when there is a universal desire to eliminate extravagant expenditures of all kinds, attention should be directed toward station design in common with other details of railway activities to provide facilities adequate for the traffic without becoming monuments in the town.

WAR MAY REDUCE RAILWAY TRESPASSING

IN one respect the state of war we are now in may prove to be of benefit to the railways. A reduction in the number of trespassers upon railway track and trains may result from the guarding of tracks and bridges by the armed forces of the United States for the purpose of preventing wilful interference with transportation facilities. As Fairfax Harrison, chairman of the American Railway Association's Special Committee on National Defense, has said in a warning statement recently issued: "In addition to the ever-present danger of being killed by a train, the man who now trespasses on railway property subjects himself to the peril of being shot, should he fail to heed the challenge of the military guard."

The trespasser, in great numbers, has persistently refused to heed all sorts of warnings of "the ever-present danger of being killed by a train." The latest railway accident statistics are those covering the months of July, August and September, 1916, which are given in the quarterly bulletin recently issued by the Interstate Commerce Commission. They show that the number of all persons killed in that period in accidents resulting from the operation of trains was 2,781, and of this number 1,512, or 54.4 per cent, were trespassers.

More than three times as many trespassers as of employees on duty were killed during the period under consideration. When it is taken into account that the list of employees killed in accidents resulting from the operation of trains included road trainmen and switching crews—enginemen and motormen, firemen and helpers, conductors, brakemen and flagmen, hostlers, brakemen acting as switchmen or helpers —switch-tenders, crossing flagmen, gatemen, policemen and watchmen, track-men and other employees, and that less than one-third as many men were killed in all these employments as the number that met death on account of their own disregard for their personal safety, it appears that railway operation is not a specially hazardous industry except for those who go on railway property entirely through recklessness or negligence.

During the same period, two passengers on passenger trains, two passengers on other trains, and three persons carried under contract (this class comprising postal clarks, Pullman employees, news boys, baggage and transfer agents, etc.) were killed, and 57 persons classed as passengers met death from various causes around trains or in yards. In other words, 23 times as many trespassers were killed as of those, except employees, who were rightfully on or about trains.

More than 5,000 trespassers were killed in train service accidents during the year ended June 30, 1916. This number was more than 56 per cent of the whole number of persons killed in all classes of accidents resulting from the operation of trains, locomotives and cars during the year. The infirmity of local legislation as a restraining influence upon trespassing has been demonstrated. Reciting the foregoing facts and the further statement that though 13 states have legislation on the subject of trespassing, it appears to be difficult to secure the enforcement of such laws, the Interstate Commerce Commission said in its latest annual report:

"We believe that the matter is of sufficient importance to warrant a consideration of the advisability of enacting a federal statute prohibiting, under appropriate penalty, trespassing on the trains of interstate carriers and on the tracks of such carriers at places where the carrier by appropriate sign or warning gives notice that trespassing on its tracks is prohibited."

So long as the present state of war continues, the trespasser will have the deterrent and the railway the protection afforded by federal authority represented sporadically by the armed guard at bridges and strategic points. The condition may be influential and the conclusion suggestive. It will be worth while to note whether the accident bulletin which may be issued to cover the three months immediately following the date of the declaration of war shows any appreciable diminution in the number of fatalities to that class of persons who have been incidentally protected against themselves. If it does, the obvious next step should be an amplification of the scope of federal intervention.

THE OWNERS OF THE RAILROADS

WHO are the owners of the 250,000 miles of American railways? The bankers, insurance company presidents, savings bank presidents, and investors, who met in Baltimore at the invitation of S. Davies Warfield, president of the Continental Trust Company of Baltimore, last week, said that they and those whom they represent are the owners of the railroads. It was estimated that there were at least 1,500,000 people directly or indirectly vitally interested in the securities of the United States railroads and, therefore, vitally interested in the earning power and credit of the railroads. This estimate is probably substantially correct and it is indisputable that the interest of railroad security holders, is direct and vital; and it is indirect, but almost equally vital, in the case of savings bank depositors and insurance policy holders. But the question that may very fairly be asked, which cannot be answered with a simple "Yes" or "No," is as to whether or not these people are the owners of the railroads in the sense in which we understand ownership when applied to real estate.

Bankers have sold securities to investors for so many years on the basis of the credit of the bank or bankers rather than on any first hand information about the earning power of the property against which the securities are issued; and life insurance has been sold so largely on the basis of the plausibility and salesmanship of agents; and savings bank depositors have trusted implicitly to the good judgment of their bank's officers in investing the depositors' funds, that now when the bankers turn to the investors and say, "You are the owners of the railroads," the investors are rather startled.

If the National Association of Owners of Railroad Securities which was formed at Baltimore last week is to really accomplish the aims which were outlined by Mr. Warfield, a long and intensive campaign of education will have to be undertaken. Such a campaign, however, would be of immeasurable value to investors and of very great value to the railroads.

The Century Dictionary's definition of ownership is as follows:

> The state of being an owner; the right by which a thing belongs specifically to some person or body; proprietorship; possession as an owner or proprietor.

The small investor in railroad securities or, so far as that is concerned, the large investor, could hardly claim ownership of the railroads under this definition. Up to a comparatively few years ago the possibilities of getting control of a railroad company, of exploitation and of making large profits by taking large risks, drew into the management of American railways some of the best brains in the country. All of these incentives, however, have now largely been removed. Exploitation is no longer the fashion; promoters' profits are not a possibility; control of a railroad company, and even when it is concentrated in the hands of one man who acts both as president and chairman of a board of directors who are ready to follow his lead, means only that a man can act within very narrow limitations and only with the approval, even as to detailed questions of management, of the Interstate Commerce Commission and of the various state commissions that have jurisdiction over the particular railroad. Such a position as this will not attract business genius and the investors

in railroad securities and life insurance officers and savings bank officers as the representatives of policy holders and depositors will have to try to secure men for the managers of the railroads that will be big enough to handle the tremendous task, and they will have to back their managers up with their influence on public opinion.

If this analysis of the present railroad situation is correct, the possibilities before the National Association of Owners of Railroad Securities are great almost beyond realization. The first step will have to be the education of the great mass of investors. If this movement to support the railroads is only carried on by a few hundred large investors and bankers it may be of some temporary help, but it will have missed all but the smallest fraction of the great work which it can do. In working out this first step—the education of the rank and file of investors, direct or indirect, in the securities of railroads—the railroad managements can be of assistance. The National Association of Owners of Railroad Securities, if it is to do the work planned for it, will have to be in intimate touch with the railroad situation and with the credit condition and the earning power of each individual property. Frankness and willingness to give full information even to apparently impertinent or not very intelligent inquiries will be a long step toward establishing a better understanding on the part of the investing public of railroad problems. In some way or other, there will have to be established that relationship which is typified by a heart to heart talk between two people. If the National Association of Owners of Railroad Securities can bring into the presence of the railroads, as it were, the owners of railroad securities, the railroad managements should welcome the opportunity and on their part meet it with plain outspokenness.

ST. LOUIS AND THE RAILROADS GET TOGETHER

A CONTROVERSY between the city of St. Louis and the Terminal Railroad Association of more than ten years' duration was brought to a close on May 19 when T. M. Pierce, general counsel of the Terminal, filed formal acceptances of ordinances which will enable the company materially to increase its storage, team track and other facilities for handling the growing traffic of the St. Louis gateway.

Ten years ago the Terminal acquired by a ninety-nine year lease a large tract of land in the heart of the railroad district to improve its facilities for handling local freight business. In order to develop this for railroad use it was necessary to have the city vacate some "paper" streets and alleys. When official sanction for this was asked opposition was started by a number of real estate agents and politicians and a few shippers who insisted that the railroads owning the Terminal should abolish all differentials with respect to traffic from nearby points in Illinois and crossing the Mississippi at St. Louis. This the railroads declined to do, and the Interstate Commerce Commission unanimously sustained them. Although the Commission's decision was rendered some years ago, the struggle was continued, and meanwhile it was next to impossible for the Terminal to utilize any of the properties it had acquired for the betterment of its facilities. All the while the leading business organizations tried to end the feud and bring the railroad interests and the city closer together. Three different city administrations put in ten busy years striving for a peaceful solution, but it remained for the present administration, headed by Mayor Henry W. Kiel, to end the chaotic condition and bring about an understanding which now seems to please everybody.

While the Terminal Association's hands were tied more than a million dollars were expended for rental of ground which it was prevented from utilizing in any manner whatever. Under the terms of the new ordinances it gets the use of the "paper" streets and alleys in its 26-acre tract, and in return surrenders certain of its trackage rights on the river front. In the future it will use these tracks in common with any other road that may choose to use them on a wheelage basis. The city proposes in time to establish a municipally-owned belt line to be operated in connection with the municipal bridge spanning the river at St. Louis. Under the decisions of the Interstate Commerce Commission this bridge, while relieving congestion, cannot be used as a lever for reducing interstate rates on any kind of traffic.

The Terminal Association during all the years of controversy went ahead wherever it could without obstruction and kept itself at all times in shape to handle the growing traffic with a minimum of delay. St. Louis no longer has a fight on its hands with the railroads, and development of its terminal facilities which the ending of the fight makes practicable should be of great value to it.

TRUTH ABOUT GRAIN AND FLOUR SHIPMENTS

THERE recently has been much complaint in the newspapers from J. P. Griffin, president of the Chicago Board of Trade, because, as he has charged, the railways have failed to carry the normal amounts of grain and flour from Chicago to eastern destinations. Mr. Griffin repeatedly has attributed the alleged shortcomings of the railways in this particular to inefficiency or to unfair discrimination against the Chicago market. As is usually the case when such charges are made, the facts tell a different story. The statistics of the Board of Trade itself wholly disprove the charges of its president. They show that both in the calendar year 1916, and in the first four months of 1917, the eastbound rail shipments of grain and flour from Chicago exceeded those for earlier corresponding periods. The eastbound rail shipments in the last four calendar years were as follows:

EASTBOUND RAIL SHIPMENTS FROM CHICAGO

	Wheat, bu.	Corn, bu.	Oats, bu.
1913	27,933,000	58,318,000	89,928,000
1914	25,908,090	39,514,000	107,231,000
1915	39,552,000	48,669,000	120,781,000
1916	53,360,000	44,854,000	110,581,000
	Rye, bu.	**Barley, bu.**	**Flour, bbls.**
1913	1,534,000	6,961,000	3,247,000
1914	2,002,000	6,166,000	4,007,000
1915	4,009,000	8,560,000	4,895,000
1916	4,337,000	10,428,000	6,058,000

The eastbound shipments of the same commodities, excepting barley, during the first four months of the year 1917 were as follows:

ALL GRAIN SHIPMENTS FROM CHICAGO, 1917

	Wheat, bu.	Corn, bu.	Oats, bu.	Flour, bbls.
January	2,380,000	4,336,000	4,435,000	655,000
February	2,502,000	3,222,000	4,968,000	431,000
March	3,049,000	4,844,000	7,928,000	1,264,000
April	4,245,000	5,195,000	14,304,000	924,000
	12,176,000	17,597,000	31,635,000	3,274,000

These statistics are presented mainly as an illustration of the groundlessness of most of the charges of mismanagement which are constantly brought against the railways in periods of stress such as the present. There has been an enormous increase within the last 18 months of traffic of certain kinds in eastern territory. This has been directly and indirectly due to the development of the munitions industry. There has been during this time a very severe congestion at the Atlantic ports, owing to inadequacy of shipping. If under these conditions the railways had carried a somewhat reduced tonnage of grain and flour eastward it would not have been surprising. On the other hand, in spite of the untoward conditions, they have carried, not less, but more; and this in spite of the fact that the total grain crop of 1916 was less than the average of the preceding four years. Men who are put in positions of prominence by business interests,

and who use these positions of prominence to secure publicity for their misrepresentations of other business interests, help to create public opinion and further governmental action which do harm to all business interests.

RECRIMINATIONS BETWEEN RAILWAYS

THERE always has been more or less friction between groups of the railways of the United States. Officers of the eastern lines sometimes have expressed a poor opinion of the managements of the western and southern lines; and the officers of the western and southern lines have been nothing loath to repay with interest the left-handed compliments received.

Recently this tendency of the officers of groups of railways to indulge in recriminations against each other has increased. This has been mainly due to the traffic congestion and car shortage and their consequences. Throughout the period during which these conditions have existed, the eastern lines have had on their rails a much larger part of the total supply of freight cars than they own. All attempts to make the number they own correspond to the number in their possession have failed. The officers of many of the southern and western lines have been bitter in their comments on this fact. They have denounced the managers of the eastern lines for everything from incompetency to highway robbery.

The *Railway Age Gazette* knows "no east, no west, no north, no south" where railways are concerned. Therefore, perhaps it would be best for us in the existing circumstances, to assume an attitude similar to that once taken by Mark Twain when heaven and hell were under discussion. He did not care, he said, to participate in the discussion, because he had friends in both places. But at the risk of being charged with rushing in where angels fear to tread, we venture to express the opinion that most of these recriminations between railways are baseless, foolish and inopportune. It may be thought that since the eastern lines have had most of the cars, the other lines ought at least to be granted the privilege of making most of the complaints. But we doubt that. It is, perhaps, not without significance that while the eastern lines have had most of the cars for some months, it is these same lines which have been showing the largest increases of operating expenses and reductions of net earnings. On the other hand, some of the western and southern roads which have been complaining loudest about the confiscation of their cars have been among the roads which have been most successful in maintaining their net earnings. Having too many cars is usually as bad as or worse than having too few; and there is plenty of evidence available indicating that in the matter of cars the eastern lines have had a distinct superfluity of riches.

Nor do we believe there is any evidence that the possession of this superfluity of riches is attributable to any exceptional tendency on the part of the eastern lines to take what does not belong to them. We have been watching the operation of car service rules for a long time, and our observation suggests the conclusion that under such conditions as lately have existed, the disposition to steal cars manifests itself with about equal force in all parts of the country and on almost all roads. If only those roads which have been without fault in this respect were allowed to cast stones, the number of such missiles flying about would be much smaller.

Finally, we are constrained to believe that the failure of the eastern lines to reduce the number of cars on their rails as fast as many think they ought to is not necessarily due to the incompetency of their managers. A large part of the presidents and chief operating officers of eastern lines received much of their experience and training on western railways; and therefore it is fair to assume that neither in point of ability, nor of methods, do they differ extremely from their brethren who have remained in the west.

The fact is, that the conditions which recently have stirred up so many recriminations between railways have been due to conditions which no group of railways created and the results of which have been largely beyond the control of the managements of any group of railways, or of all the railways. Among these conditions have been a great increase in traffic as a whole, a relatively enormous increase of export shipments moving to the Atlantic seaboard, and an acute shortage of vessels necessary to handle this large export business.

Who foresaw these things? Nobody in the railway business; nobody outside of it. The whole trouble has been due largely to want of foresight on the part of everybody. Then why criminate and recriminate? Why should the public abuse the railways? And especially, why should the railways abuse each other? When officers of the western and southern lines tell shippers that the fault is with the eastern lines, or when officers of one southern or western line tell their shippers that the fault is with other southern or western lines, they tell them, first, what is not so, and, second, what furnishes extremely good ammunition for those who want ammunition to use against the managements of all the railways and against private ownership of railways.

Every family has dirty linen to wash; but no well-conducted household washes its dirty linen in public and hangs it out to dry in the front yard. To change the metaphor, every well-conducted family has its internal troubles but every such family, whatever its internal troubles, realizes that while it should correct the shortcomings of its individual members, it should not ordinarily advertise them, but should present a united front to the rest of the world. The railways of the United States constitute a family whose members, able and remarkable as they are in many ways, have nevertheless shown a want of ability to learn these simple lessons of decency and good sense. They have been remarkably slow to learn that, as Franklin said to the signers of the Declaration of Independence, if they do not hang together, assuredly they will hang separately.

NEW BOOKS

The Railroad Problem. By Edward Hungerford. 265 pages, 20 illustrations, 5½ in. by 8 in. Bound in cloth. Published by A. C. McClurg & Co., Chicago. Price $1.50.

Mr. Hungerford calls the railroad "The Sick Man of American Business." He shows that the railroad is sick because regulation has prevented it from being properly nourished, while at the same time it has largely increased the demands made upon it. He points out that the investment in railways within recent years has increased much faster than the net return earned by them; and he believes that there is an enormous amount of deferred maintenance which must be made good out of future earnings. He presents a clear picture of the transportation question in the United States in a popular and entertaining style which is calculated to appeal to the general reading public. He shows in a convincing way the financial and physical deficiencies of the railroads, and to what a marked degree the further expansion of our commerce and industry is dependent upon the intensive and extensive development of transportation facilities. He discusses at length the labor problem of the railroads, the relative importance and compensation of organized and unorganized employees, the relation of the railroads to national defense, opportunities for the railroads to improve their service and to develop additional sources of revenue in new fields and the necessity for more generous treatment of the carriers by the public and its governmental representatives. The widest possible circulation of the book would be of great value to both the railway companies and the public as a means of really enlightening the latter about the former.

Letters to the Editor

HOW SHALL THE CARRIERS PROTECT THEIR JUST INTERESTS IN THE FEDERAL VALUATION WORK?

RICHMOND, Va.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

In the work of federal valuation, it has become manifest that the carriers subject to valuation are facing a serious crisis in order to secure their rights under the valuation act. The carriers have, in good faith, entered upon this work under the terms of the act. They have shown their sincere desire and purpose to co-operate with the representatives of the Interstate Commerce Commission, as commanded by the act.

Through an organization, carefully thought out, the carriers have brought to the Division of Valuation, in order to secure full co-operation, committees composed of men thoroughly qualified for this work, whose lives have been devoted to the many-sided phases of public carrier properties. These committees are representative of the best types of chief executives, legal counsel, engineers and financial officers of the carriers. The public and recorded utterances of these committees before the Interstate Commerce Commission, and before its Division of Valuation, are indisputable proof of the earnest, honest, intelligent work of the chosen representatives of the carriers. The positions taken by these committees are sustained by able and learned, written and oral, arguments of counsel. Nowhere in this record can be found any attempt to avoid the mandates of the act, or to question its authority.

But, today, the carriers know that the very integrity of their vast interests is at stake, because of the positions taken by the Division of Valuation, and their rights, as these seem to be protected by the Constitution of the United States and by the judgments of the Supreme Court of our land, will be violated, unless the mode of procedure of the Division of Valuation can be changed, if not entirely reversed.

In two notable instances the Division of Valuation is ignoring the explicit terms of the act.

1. The act directs "That the Commission shall, as hereinafter provided, investigate, ascertain, and report the value of all the property *owned or used* by every common carrier subject to the provisions of the act." The act repeats the term "owned or used" when it states that which the "Commission shall ascertain and report in detail." The procedure of the Division of Valuation ignores the property not "owned," but, none the less, "used," by the carrier for its purposes as a common carrier, thus eliminating from consideration a vast amount of property devoted by the carrier to public use. The brief filed by our committee of counsel as to property "owned or used" seems unanswerable.

2. The act specifically directs the mode of procedure to be followed in ascertaining the "present value" of the lands "owned or used." This direction is ignored, and the director has stated that the mode of procedure as to lands will be governed by his reading of the opinion of Justice Hughes in the Minnesota rate cases. Under his direction the "present value" of carrier lands will be measured wholly by the estimated value of adjacent and similar lands, thus denying to the carriers values of large amount and values plainly protected by the act. The brief and oral arguments of our counsel as to this phase of valuation work are conclusive.

The line of controversy between the carriers and the Division of Valuation is now clearly defined. How shall the issues be met?

Our nation is a complex organism. Its governmental machinery is meant to express and secure the freedom of the citizen under just restrictions. The rights of the individual, both as to person and as to property, are safeguarded by our Constitution. No legislative enactment in contravention of the Constitution can be enforced. The most solemn appeals for the protection of our Supreme Court relate to infringements upon the rights of the person and upon rights in property.

As part of our complex machinery we have this momentous work of federal valuation, and under it we are threatened with the destruction of vast property rights. Thus the danger to the carriers is a fundamental one, one that should command the attention of each person concerned in the foundations of our nation.

One weakness in the position of the carriers is the lack of information on the part of the people as to the great purport of this work. Beyond question this work of valuation is regarded generally as relating wholly to railways and other public carriers. Doubtless to many this work is the "squeezing of the water" out of the securities of the carriers. The people do not know that it is their own interests that are at bar. They do not know that their interests are vironal with ours. "The skin is closer than the shirt." If the people saw this work in its true relation to their own interests, would they not, like a smoldering fire, blow alive and stand for justice?

The forces that control human action, human thought, are not exactly known. Often they are like the unseen powers that proclaim themselves in cataclysmic results. But back of all action, all thought, are forces, seen or unseen. Mrs. Andrews, at the last meeting of The American Academy of Political and Social Science, said: "We may mold history tomorrow, if we can mold opinion today." Public opinion is reflected in every part of our governmental machinery. Even the judgment of a high tribunal may be the echo of the will of the people, although an unconscious echo. Norman Angell, at the same meeting, said, speaking of "Public Opinion in Foreign Policies": "It is finally public opinion which does settle these matters, anyway. The only question is, will it be an informed public opinion, or one that is not informed at all?"

Is public opinion a more negligible force in our valuation work than it is in the determination of other great matters? Elihu Root has said: "Law cannot control national policy." How shall the policy of the representatives of the government be controlled in our valuations? Underlying all great human movements are two forces; one the thought that is openly spoken, but that is often only the lip-thought; the other is the sub-conscious thought of the people that ripens slowly, but that may be expressed with irresistible power.

The most autocratic sovereign yields to the guidance of some counsellor. The listening ear belongs to him who sits in the seat of the mightiest. Will not the carriers be to blame if they fail to try to reach the conscious thought of public opinion, and to bring into proper play an informed sub-conscious thought?

We are trying our case on high lines, but they are industrial lines. We demand justice as to our values before the bar of the Interstate Commerce Commission. Should we not go, in some proper manner, before the bar of public opinion, and show, as we can, that our cause is the cause of the people? That if our rights are denied to us, it is the people who will feel the wrong?

Opposed to the carriers in their just claims are representatives of public service commissions of the states. Their political activities are well known. In their denial of the just claims of the carriers they claim to be champions of the

rights of the people. To leave that claim unchallenged would seem to be a grave error. These self-styled protectors of the people may create in their own behalf an uninformed public opinion, with a hurtful and ineluctable result.

Can not the representatives of the carriers, should they not in obedience to their trust, seek the proper means to secure an informed public opinion, as a force in support of justice? There can be no higher duty than the molding of public opinion on the lines of truth and justice.

The appeal to an informed public opinion so far suggested in this paper has been based on the self-interest of the public. But may we not take a higher position, one that over-tops the self-interest of the people? Here is a great work that affects vast interests where rights are in jeopardy. We believe we know that the jeopardy is real. Even did this jeopardy not threaten directly the rights of the whole body politic, is public opinion so dead to truth and right that its ear is deaf to an appeal for justice? Within the century and a quarter of our nation's life we have seen a great revolution because of the clash of public opinion. It is the uninformed public opinion that is to us a real danger. An informed public opinion, unless our democracy is becoming decrepit, is ready at all times to defend from wrong any member of the democracy. And, so, is it utopian to look for the unselfish aid of an informed public opinion in our demand for justice? An ancient proverb says: "Si mundum vult decipi, decipiatur." (Let the people be gulled, if they so desire.) But we of today believe in an informed public opinion.

The executive officers of the common carriers are simply the guardians of the property in which the people, by their investments in the securities of the property, have a vital interest. These executives have a dual obligation; one to render to the public the proper service, the other to protect the property devoted to that service. Therefore, when that property is threatened with harm, the people should know fully the danger, and its source, so that, so far as is possible, the people can then come to the aid of the carriers; and no weapon is more powerful than an informed public opinion.

Although it may seem that these so-called "tentative valuations" and "final valuations" are merely a report to Congress, and inoperative except in certain actions as set forth in the valuation act, have the carriers no legal rights affected by these reports? If the reports fail to comply with the mandates of the act, and thereby work an injury to the carriers, have the carriers no remedy?

Fundamental in the jurisprudence of our country is the historic opinion uttered by Chief Justice Marshall in Marbury vs. Madison (1 Cranch; 137). In this case the Chief Justice said (page 163): "The very essence of civil liberty certainly consists in the right of every individual to claim the protection of the laws when he receives an injury." Then he quotes from Blackstone's Commentaries (Volume III, page 23):

"It is a general and indisputable rule, that where there is a legal right, there is also a legal remedy by suit, or action at law, whenever that right is invaded." And then the reiteration by Blackstone in the same volume (page 109):

"For it is a settled and indisputable principle in the laws of England, that every right, when withheld, must have remedy, and every injury its proper redress." And let us remember that in this opinion the Chief Justice declared that "The Government of the United States has been emphatically termed a Government of laws and not of men."

Have, then, the carriers no rights under the act? Has the act tied the hands of the carriers so that they must sit supinely helpless when their rights are confiscated? Then, all the more should the great executive officers of the carriers, the guardians of the property of individual citizens, declare to the people the confiscatory procedure now in process in the great work of Federal valuation.

JAMES POYNTZ NELSON,
Member, Valuation Committee, Chesapeake & Ohio.

THE CAR INTERCHANGE RULES

HOUSTON, Texas.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

In reaching a safe conclusion as to the value of any given set of rules it is the part of prudence to become familiar with the rules themselves, and even more important to ascertain the underlying principles which those who created the rules had in mind to establish. A review of the car service rules in effect up to April 26, 1917, relating to car interchange between common carriers in North America leads to the conviction that whatever may have been the practice in the handling of cars, the basis of the rules themselves was that the railroad allowing its cars to pass to another carrier is entitled to a speedy return of the identical cars. This is so simple a principle, particularly when applied to other forms of property, that it is not surprising that the rules have been based thereon from the first day that they were prepared to cover the interchange of equipment between carriers, and, remembering the inherent reluctance to abandon one principle in order to espouse another, it is little wonder that all efforts to change the principle have been resisted successfully for some 60 years, or until April 26, 1917.

If the original principle was good in the beginning, and worked to the general satisfaction of all when there was little interchange, or none at all, it is equally clear, in view of present day conditions, with interchange taking place at the rate of a quarter of a million cars daily, that the new principle is quite as good under the new conditions. It is evident that under the operation of this new principle the car owner must now look more to car balances than heretofore, and less to the initials which cars may chance to bear—that box cars alike except as to the initials, are one car, that "A. B. C." on one car and "X. Y. Z." on another must not be permitted to hamper their usefulness in handling a nation's commerce, and that both should be circulated quite as freely as though, instead of bearing any initials at all, they carried the legend—"Circulate me on the same principle as a national bank-note is circulated."

This principle recently written into the rules also has loyal supporters who have long and ardently held that it is sound, whether in times of car shortages or surpluses, whether the country is at peace or war. Those holding such views owe much to the old school, the defenders of the original principle, many of whom remained loyal to the last, yielding only because of their greater loyalty to the country itself, and to make it possible to more nearly meet a nation's need.

Personally I experienced a feeling of pronounced relief immediately upon receiving word of this change in principle; nor was I alone in this feeling. From one end of our railroad to the other expressions of gratification were heard. One officer exclaimed: "I feel ten years younger." This wave of satisfaction, which must have touched all portions of the continent, means a great deal. It means that simple car handling rules will replace complex ones; that it will hereafter be easy for the rank and file to know what to do and how to do it, and that in the near future self-confidence in car handling will supplant all uncertainty and fear.

While this authoritative adoption of a new principle marks an epoch in car handling, it should be considered as the beginning rather than the culmination. The ice having been officially broken, constructive work will be undertaken with zest by those occupying positions from the highest to the lowest, and it is confidently predicted that practices fair alike to all, and flexible enough to meet all emergencies, will not only be adopted, but enforced.

F. M. LUCORE.
Assistant General Manager, Southern Pacific Lines.

Little Opposition to the Rate Increase

Cross-examination of the Railroad Witnesses Completed; the Shippers Open Their Side of the Case

CROSS-EXAMINATION of railroad witnesses before the Interstate Commerce Commission in the rate advance case was completed on May 25 and the introduction of evidence on behalf of the comparatively few shippers who are protesting against the proposed increase was begun on May 26.

The marked difference between the way in which this case is being handled and the procedure in former general rate cases was especially noticeable not only in the manner in which the commission is expediting the testimony, in order to adhere strictly to the schedule it has laid down for completing the case by June 12, but in the reduction in the amount of opposition. The commission limited cross-examination to one counsel for each witness, except in a few cases, many witnesses were not cross-examined at all, and many witnesses on both sides made their oral testimony very brief, supplementing it by filing statements and exhibits.

The opposition to the railroads has been led by a committee representing the National Shippers' Conference, which was organized at Chicago on April 3, consisting of Clifford Thorne, Luther M. Walter and Graddy Cary, although J. V. Norman, representing the Southern Hardwood Traffic Association, A. E. Helm, counsel for the Kansas Public Utilities Commission, and J. H. Hall, chairman of the Nebraska State Railway Commission, have also taken an active part.

The National Industrial Traffic League, which has taken a leading part in the opposition to former rate advances, held a well attended meeting at Washington on May 25 to discuss the subject of increasing transportation efficiency, but very few of its members attended the rate hearing which was in progress in the same hotel. On the following day H. C. Barlow, chairman of the league's executive committee, testified before the commission that shippers generally are not opposed to a temporary rate advance and was subjected to a more vigorous cross-examination by the representatives of shippers who had formerly participated with them in opposing railroad requests for higher rates than were most of the railroad men who had testified.

J. B. Duke, assistant comptroller of the Southern Railway, who had presented the statistical testimony for the southern lines, was recalled for a brief cross-examination on May 24, and was followed by several executives of southern lines who had not testified at the first hearing but were called by the protestants apparently for the purpose of shifting the burden of the discussion from the subject of increased prices for fuel and supplies to surpluses and dividends.

L. E. Johnson, president of the Norfolk & Western, was asked but one question, whether his road could pay its dividend in 1917 without a 15 per cent advance, and without encroaching upon the surplus. He replied that it could.

A. R. Smith, vice-president of the Louisville & Nashville, was called at the request of Mr. Norman, who had him file in the record copies of three pamphlets recently issued by the road, by President Milton H. Smith, G. E. Evans, vice-president, and W. A. Northcutt, commerce counsel, severely criticizing the work of the Car Service Commission and complaining because Louisville & Nashville cars were not returned by other roads. In response to questions by Mr. Van Norman, Mr. Smith said that his road had been unable to handle all the traffic offered to it, that its earnings had been reduced because it had not had the full use of its own cars, and that this condition would, in his opinion, be relieved if the Interstate Commerce Commission had the power over car distribution conferred by the bill just passed by Congress.

Commissioner Clark interrupted to ask a few questions about the increases in the Louisville & Nashville earnings, after which he remarked that if it had had many more cars they would not have been sufficient to haul the money it would have earned. The Louisville & Nashville surplus also figured prominently in the discussion.

C. H. Markham, president of the Illinois Central, was questioned by Mr. Norman, who asked if a horizontal advance would not place some shippers at a disadvantage as compared with others.

"The rate question cuts very little figure today with the shipper who cannot get cars," replied Mr. Markham. "It seems to me that it is in the interest of the shippers to let the railroads have an increase in rates which will enable them to provide enough facilities to properly serve the public and prevent the recurrence of such a situation as exists today. It would not cost a tithe as much to allow the railroads to keep a little ahead of the demands, which may be made upon them in times of unusual business as it does to let them fall behind a little."

"Will a 15 per cent advance enable the railroads to provide additional facilities, or will it merely enable them to meet their increased expenses?" asked Commissioner McChord.

"In our case it will do a little more than that," said Mr. Markham. "We can live but we can't continue to serve the people properly without additional revenues. Some of our neighbors can't even live without relief."

Mr. Markham referred to a large increase in freight loss and damage claims, caused in part, he said, by the increased prices of the goods shipped and in part by the increased inefficiency of labor, in spite of higher wages. It was pointed out that the Illinois Central last year earned 7½ per cent on its stock and had a surplus of $16,000,000. Mr. Markham was asked if that represented any reason for a gloomy view of the future and why he could not pay his increased expenses from the surplus. Mr. Markham said he was not gloomy, but that the surplus was not in cash where it could be drawn on. Commissioner McChord asked most of the railroad men whether they regarded the increases in the cost of supplies, fuel, etc., as extortionate and whether they had made any investigation as to whether they fairly represented increased cost of production or an undue profit. Mr. Markham replied that those from whom the railroads purchased seemed to be able to dispose of their products to others at the same or higher prices and that in his opinion, the prices were governed by the law of supply and demand. "They seem barbarous to me," said Mr. McChord.

Commissioner Clements asked his usual question whether the cost of the Adamson law could not be offset by changes in operating methods. Mr. Markham said the Illinois Central had been able to save 1.4 per cent in the switching service, but nothing in other train service because to increase the average speed of freight trains from 10 to 12½ miles an hour would necessitate reducing the tonnage per train 20 per cent and it was impossible to change the location of terminals.

Henry Walters, chairman of the Atlantic Coast Line, said that the increased price of coal was not yet reflected in its reports because its contracts for fuel run until July 1. He was asked why he could not pay the increased expenses from

the surplus or call on the Louisville & Nashville to pay a higher dividend on its stock which is controlled by the Atlantic Coast Line. He explained that of the $35,000,000 accumulated surplus only $20,000,000 was in cash and $14,000,000 of that has been appropriated. Mr. Walters said his road is better situated than some of its neighbors.

T. C. Powell, vice-president of the Cincinnati, New Orleans & Texas Pacific was asked why, if an emergency exists, his road had recently declared an extra dividend. He replied that the directors considered it a duty to the stockholders.

Efforts were made by Clifford Thorne to show that the various methods for increasing transportation efficiency which are being recommended to the roads and the shippers by the railroad war board will increase railroad revenues. Howard Elliott, of the New York, New Haven & Hartford and a member of the committee of five that is directing the co-operative efforts of the railroads to serve the government during the war, was recalled to the stand and Mr. Thorne placed in the record a series of circulars issued by the committee to railroads and shippers appealing to their patriotism during the emergency created by the war and pointing out ways in which the capacity of the existing railroad facilities might be increased. One of the circulars stated that if railroads, their employees and shippers could all co-operate to the fullest extent in carrying out these principles of good railroading, the result would be equivalent to adding 779,000 cars to the capacity of the railroads without additional capital outlay. Mr. Thorne tried to show that the adoption of these recommendations would result in great economies to the railroads and improve their net earnings.

"If these things could all be accomplished," said Mr. Elliott, "and if the railroads, their employees and the shippers would all co-operate to give them their maximum effect, it would greatly increase the efficiency of the present facilities, but the circular was not put out to make money or save money, but to make it possible to better serve the government and the public at a time when the demand for transportation greatly exceeds the supply and it is almost impossible to obtain increased facilities.

"We have tried to hitch our wagon to a star and aim high. If everybody helps we may be able to approximate the ideal which we have set up. The suggested methods represent the things that every railroad has been trying to do for years, but some have succeeded much better than others and there is always room for improvement."

Further increases in the wages of railroad employees were disclosed in the cross-examination of western railroad executives on May 25. J. M. Dickinson, receiver of the Chicago, Rock Island & Pacific, stated that wage advances his company would be compelled to make to the various classes of employees would add several million dollars to his previous estimate of increased operating costs. It was stated for the Burlington that there had been increases in wages since the petition for advanced rates was made of over $3,000,000 a year. The Missouri Pacific presented figures showing an increase of $1,278,000 in the company's payroll in addition to the increased wages to trainmen, and it was stated that the shopmen were asking for an increase of nearly $2,000,000 in their wages on the Missouri Pacific.

The western railroads had previously estimated that the Adamson law and other wage increases would add $116,000,000 to the payroll, but on the cross examination it was stated that recent adjustments of pay and the demands of shopmen and other employees would greatly increase this amount.

Judge Dickinson was followed by R. H. Aishton, president, of the Chicago & North Western; W. B. Biddle, president of the St. Louis-San Francisco; B. L. Winchell, traffic director of the Union Pacific, and A. L. Conrad, assistant general auditor of the Atchison, Topeka & Santa Fe, Mr. Winchell was asked by one of the shippers' representatives whether he knew of any way whereby rate relief could be given to the less prosperous roads without unduly adding to the profits of the few prosperous companies. Mr. Winchell said that he knew of no way that this could be done.

Mr. Biddle was questioned regarding the Frisco reorganization expenses and the increased capital of the company under the reorganization plan. Mr. Biddle said that while the securities had been increased in amount, stock had been substituted for bonds so that the fixed charges were now smaller than before the receivership.

The new Union Pacific ticket office in New York was the target of criticism from one of the shippers' representatives. He said he had not seen the new office, but he had read that it was as palatial as a Fifth avenue drawing room. He asked Mr. Winchell if this were not an extravagance in times like these. Mr. Winchell said that only $6,000 had been expended in fitting out the office and he did not think that this was an extravagant amount to spend on a ticket office in the greatest city in the country. When asked whether the railroads could not save a great deal of money by abolishing competitive ticket offices in the large cities, Mr. Winchell said this was entirely possible if somebody would first abolish competition between the railroads.

This completed the cross-examination of railroad witnesses, but before the shippers began their presentation, C. W. Crooker, general counsel for the Boston & Maine minority stockholders' protective association, was allowed a short time for an argument as to the needs of the Boston & Maine for a rate advance in order to enable it to pay its guarantees of dividends and interest to the leased lines, ranging from 4 to 10 per cent and requiring over $5,000,000 annually. "The Boston & Maine is not only a sick railroad," Mr. Crooker said, "but it is sick with a peculiar disease and unless there is an immediate transfusion of income it will cease to exist." He said it had been found impracticable to reorganize the road as a new corporation in such a way as to eliminate the fixed requirements of the leased lines and that unless the guarantees are paid there is a menace of a complete disintegration of the system because the various lines will be taken up by other roads. Commissioner Daniels asked if he was prepared to show that the leased line charges were not exorbitant. Mr. Crooker said they had been fixed by agreements entered into with the knowledge and consent of public authorities and that valuations made by the road had showed the charges to be only 4.29 per cent on a fair value. However, he based his argument mainly on the importance of keeping the system intact. He said the resolution introduced by Senator Cummins to direct the commission to investigate the Boston & Maine reorganization had been introduced at his request for the purpose of showing whether or not there is a "gigantic conspiracy" to perpetuate control of the road by the New York, New Haven & Hartford.

Shippers Testify

The first witnesses for the shippers were representatives of the cooperage interests, who said they would be most seriously affected by an advance in rates at this time because they had been forced by competition to make long-time contracts under which they would have to pay the freight. F. S. Charlot said that from 30 to 42 per cent of the entire cost of the product at the point of consumption was represented by freight charges, and that his company had contracts for delivery in 1918 on which he would have to pay the freight. The railroad counsel had adopted a policy of asking each shipper about increases in the price of his product. W. L. Welford, president of the Associated Cooperage Interests, said the average price in his line had increased 23 per cent in a year and the average cost of production had increased

22 per cent. Asked to specify more particularly as to prices of various grades he said the price of whiskey barrel staves had been reduced $20 per thousand because practically no more whiskey is being manufactured, and as a result he will have to sell his best product at the second grade price for oil barrels.

W. J. Womer, representing the Chicago District Ice Association, and other witnesses representing eastern natural ice producers, objected to an advance on the ground that it would transfer their business to the producers of manufactured ice that have no freight haul.

George J. Kindel, representing the Colorado State Grange, protested very vigorously against a horizontal increase in rates, because he said it would "multiply and compound" the disadvantages which Denver is now subject to "as the apex of high rates in every direction" and he produced large charts to show that a 15 per cent advance would add more to Denver's freight rates than to those of its competitors. He said he would not protest against a specific advance in cents per hundred pounds because he recognized that economic conditions make higher rates necessary, and he suggested an advance of one cent per hundred, which he said would produce $250,000,000 a year.

A representative of the Western Fruit Jobbers' Association and the National League of Commission merchants began an argument that food products should be exempt from any rate advance in order that it might reach the consumer at the lowest price, "even," he said, "if the railroads should haul it gratis," but he immediately encountered a peculiar lack of sympathy in the atmosphere. Commissioner McChord asked whether the prices of his product had been increased. He thought they had to some extent. Commissioner Clark asked whether he thought freight rates had anything to do with putting the price of flour up to $17 a barrel and whether it would be any cheaper if the railroads did haul it free, in view of the fact that the freight on a barrel of flour from Minneapolis to Washington is about 45 cents. The witness replied that it should take 15 or 20 cents off the price per sack, but the commissioner remarked that "prices are much more sensitive to freight rates going up than coming down." The witness also said that a great many canned goods and similar products had been sold for fall delivery at a price which included the freight rate. Commissioner Clark asked why such contracts were made in the face of a law which provides for changes in rates and said that the commission could never change a rate without affecting some contract. W. H. Young, traffic manager of the Nebraska-Iowa Fruit Jobbers' Association filed a statement to show that freight rates on his product had been increased in recent years and was asked by Commissioner McChord to file a statement showing the increase in prices.

N. P. Westcott, representing the Eastern Shore of Virginia Produce Exchange, was asked some pointed questions regarding the mounting prices of potatoes, but had an alibi because his crop for this year has not yet begun to move and the prices have not been settled. He said some sales had been made at $4 a barrel against $2.45 last year, these prices being f. o. b. shipping point. Commissioner Daniels wanted to know what the shipping point prices were which amounted to $8.00 a barrel to the consumer.

H. C. Barlow, traffic director of the Chicago Association of Commerce, interjected a new element into the case by annoucing that the shippers he represented, and he thought shippers generally, were in favor of a temporary advance in rates to meet the emergency which the carriers now face. He presented resolutions adopted by the traffic committee of the Chicago association stating that a situation exists which appears to warrant some measure of relief for the roads and expressing sympathy for the carriers, but wished to protest against any advance in lake and rail rates greater than enough to restore the relation with the rail rates which existed last year. He also appeared as chairman of the executive committee of the National Industrial Traffic League, representing 350 firms, corporations and traffic associations, and presented a resolution adopted by the executive committee and later endorsed by a vote of 122 to 17 by the membership, that the question should be submitted to the Interstate Commerce Commission "to the end that such temporary increase in transportation charges be granted the carriers as a prompt investigation on the part of the commission may disclose their present necessities in the several territories justify." At the request of Commissioner Harlan, Mr. Barlow filed a list of members of the league showing the character of the business of each.

Mr. Thorne asked about the membership of the Chicago Association of Commerce traffic committee. Mr. Barlow said eight of its eleven members were railroad presidents, but that they never voted on such questions. The other members are large merchants, manufacturers and wholesalers, "so situated that they have little difficulty in passing the advance along to the consumer," said Mr. Thorne. "On the contrary," answered Mr. Barlow, "in the business of merchandising it is practically impossible to pass along a small advance in freight rates. On some commodities it can be done but a 2 cent freight rate cannot be added to the price of a pair of shoes."

Mr. Thorne insisted that Mr. Barlow's conclusion had been reached without investigation, because he said he did not know how much the railroads serving Chicago had earned on their capital stock last year. Mr. Barlow said the conclusion had been reached after a great deal of study and was based on a knowledge of conditions which large merchants have had to contend with and know that the carriers have had to deal with them also. "We appreciate from our own experience what the situation of the carriers is and are willing to acquiesce without contention in such temporary measure of relief as the commission may find necessary," he said. Luther M. Walter asked if he was in favor of an advance, if it were not to be applied to improving the service. Mr. Barlow said that railroad service had been very bad of late but he saw no way by which the carriers could greatly improve it under present conditions.

J. S. Brown, transportation manager of the Chicago Board of Trade, advocated that the former relation between lake and rail and all-rail rates be preserved.

C. L. Chandler of the Boston Chamber of Commerce filed with the commission the results of a referendum vote taken by the directors of the organization, which resulted in an almost unanimous vote in favor of a temporary increase in freight rates. He said the membership represented practically every industry in New England. The membership also voted that passenger traffic should bear its proportion of any increase in rates that was necessary.

S. C. Child of the Sioux City, Iowa, Chamber of Commerce and C. D. Mowen of Fort Smith, Ark., testified in opposition to the increase.

Clifford Thorne took the stand on Monday, May 28, to oppose an advance in rate on grain, on behalf of the National Council of the Farmers' Co-operative Associations. He read into the record a long statement arguing that farming is not profitable and that grain and livestock are highly profitable traffic for the railroads and that no further rate burden should be imposed upon them. Mr. Thorne said that any advance in the grain rates would be borne by the producers rather than by the consumers, because the price is fixed with reference to the freight rates.

C. W. Tomlinson, secretary of the American National Livestock Association and a number of representatives of the livestock interests, testified that they were not making money because of the increases in their expenses. One of the witnesses admitted that freight rates were the only item in his expenses that had not increased. W. P. Trickett

of the Minneapolis Traffic Association, vigorously opposed any advance in rates and a number of witnesses testified that they thought the roads were entitled to an advance and that they would not oppose it, providing existing differential relationships are preserved. Among those who favored the advance were C. J. Austin, representing the New York Produce Exchange; C. V. Topping and W. I. Sterling, representing the Southwestern Millers' Association; R. D. Sangster of the Kansas City Commercial Club and F. W. Maxwell of the Denver Chamber of Commerce.

The National Association of Owners of Railroad Securities, which was organized last week at Baltimore, has addressed a communication to the Interstate Commerce Commission, requesting permission to present the views of the security holders as to the needs of the railroads for an increase of 15 per cent in freight rates.

ARMY ENGINEER OFFICERS IN FRANCE

Four officers of the engineering regiments that are to be sent to France to assist in the rehabilitation of the French railways and building additional lines if necessary for military purposes arrived in London on May 23 and have gone to France for the purpose of making an investigation and cable report to the United States as to the railway needs of the country and recommendations affecting the organization of the railway engineer regiments. The board consists of William Barclay Parsons, William J. Wilgus, former vice-president of the New York Central, W. A. Garrett, former vice-president of the Chicago, Great Western, all majors in the reserve corps, and Captain A. B. Barber of the regular army engineer corps.

Comments by Albert Claveille

Albert Claveille, the French under secretary of transportation, who now has charge of all transportation in the zone of the French armies up to the front as well as in the rear, has just returned to Paris from an inspection of the railroads, canals, and highways in the region recently evacuated by the Germans.

"The Germans carried off even the steel rails and the railroad ties," M. Claveille is quoted in the newspapers as having said to the Associated Press of his visit. "The roadbeds and ballast remain almost intact. Otherwise the destruction in stripping the railroad lines was about as methodical and complete as might be imagined. All highway as well as railroad bridges were badly damaged or destroyed as were turntables, water tanks, and switch mechanism. Even articles that would have been of no advantage or comfort to our army were taken away, which seems to indicate there is a pressing need in Germany for everything in the shape of metal."

The destruction of canal locks, M. Claveille said, was quite as complete as the damage done to railroads. All canal boats also were broken up and every means available was used for obstructing the channels.

"The best service that could be rendered to France by the regiments of engineers now being organized in the United States," said M. Claveille, "would be to bring over here equipment necessary to repair those railroads, canals, and bridges. They should bring not only the required tools now unobtainable here, but also laborers familiar with that kind of work and capable of quick productive efforts. The equipment of tools should be three-fold the normal supply for a regiment of engineers.

"The reopening of the canals in that district is most important. They must be made ready for traffic immediately in order to relieve the congestion on railway lines near the front. "The American engineers may be of immense service to us in this work as well as in rebuilding the railroads. I want to point out in this connection that in view of the present situation all units of engineers formed in the United States should be autonomous and complete in order to be of maximum utility; that is, they should bring the necessary hand labor. Only inefficient and unskilled workmen are available here now. Above all quick workers are needed.

"If America could send us a coal mining contingent in addition to the engineering corps for railroads and canal work it would be a great boon to us. It should be headed by men capable of directing necessary repairs to mines, and of organizing intensified production and should comprise coal miners who are lacking here now. The great advantage in this would be to release for transportation and other necessities ships now bringing coal to France."

The Nine Engineer Regiments

The headquarters and commanding officers of the nine engineer regiments were announced in last week's issue. The assignments of these regiments were only given in part, so they are here repeated in full as follows: First (New York) and Second (St. Louis), construction; Third (Chicago), Fourth (Boston) and Fifth (Pittsburgh), operating; Sixth (Detroit), Seventh (Atlanta) and Eighth (San Francisco), construction, and Ninth (Philadelphia), mechanical.

Officers of the First Reserve Engineer Regiment (that for the New York district) received orders Saturday to have the entire regiment in camp at Fort Totten by the end of this week. The regiment has raised the original quota of 1,060 men, but 200 more men are now being raised to make a reserve unit from which vacancies can be filled.

The call for recruits in the shop regiment (the Ninth Engineer Regiment) has been posted by the Baltimore & Ohio in all shops on the system. The Baltimore & Ohio will have to raise 250 as its quota. Realizing that numerous mechanics in various communities while not now engaged in railroad work have had such experience, the road will accept enlistments of such men as a part of the railroad unit. Records of enlistment will be kept by the master mechanic of each shop, who will report daily as to the number of men under his jurisdiction and in his community who desire to enter the service. The recruits will be sent to Philadelphia for examination prior to joining forces which are going abroad.

TRACK MATERIAL STATISTICS

According to a bulletin just issued by the American Iron and Steel Institute, the production of rails in Canada during 1916 amounted to 81,497 tons. As shown in the table below there has been a steady reduction from year to year since 1913 when Canada produced its maximum output of 506,709 tons of rails:

Production of Rails in Canada

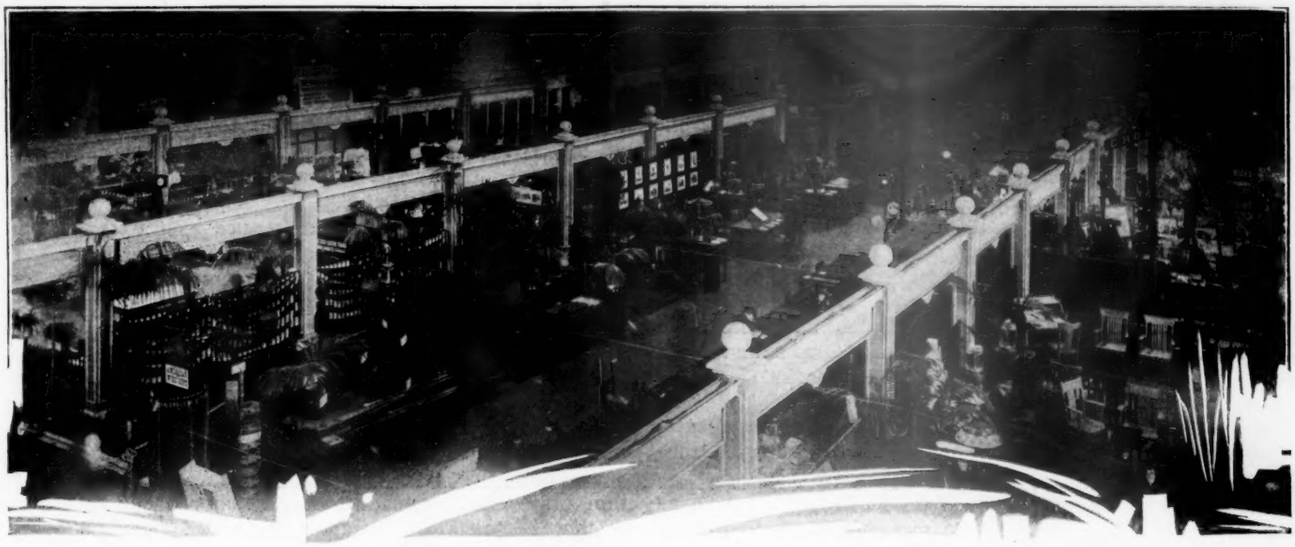
Year	1912	1913	1914	1915	1916
Tons	423,885	506,709	382,344	209,752	81,497

Of the total for 1916, 7,591 tons weighed 100 lb. per yd. or over, 56,800 tons weighed 85 lb. but less than 100 lb., and the rest weighed less than 85 lb. per yd. The angle bars, tie plates and other rail joints and fastenings produced in Canada in 1916 amounted to 6,479 gross tons as compared with 9,406 tons in 1915, 34,165 tons in 1914, and 54,839 tons in 1913.

Statistics were also given for angle bars, tie plates and other rail fastenings produced in the United States for 1915 and 1916 as shown below:

Production of Finished Angle Splice Bars, Tie Plates, Fish Plates, Etc. Production of Rail Joints and Fastenings, 1915-1916

Articles	1915—Gross tons			1916—Gross tons		
	Iron	Steel	Total	Iron	Steel	Total
Angle splice bars	2,937	116,271	119,658	3,090	159,612	162,702
Tie plates	43,606	239,903	283,509	60,447	264,271	324,718
Fish plates	88	10,748	10,836	300	22,602	22,902
Other rail joints	300	56,421	56,721	1,273	90,514	91,787
Total	49,931	423,793	470,724	65,110	536,999	602,100



The Value of the Railway Appliance Exhibit

Prize Contest Draws Out Discussions of This Year's Show and Suggestions for Possible Improvements

THE prizes announced in the *Railway Age Gazette* of February 2, for the best papers on the exhibit of the National Railway Appliances Association held in Chicago during March have been awarded by three boards of judges. The prize winning paper in the general contest covering the exhibit as a whole was written by E. M. Grime, supervisor of bridges and buildings, Northern Pacific, Dilworth, Minn., the selection being made by W. B. Storey, vice-president, Atchison, Topeka & Santa Fe; A. S. Baldwin, chief engineer, Illinois Central, and J. A. Peabody, signal engineer, Chicago & North Western. In the separate contest conducted for the maintenance of way exhibits, a board of judges composed of A. S. Baldwin, chief engineer, Illinois Central; C. F. W. Felt, chief engineer, Atchison, Topeka & Santa Fe, and W. H. Penfield, assistant to the vice-president, Chicago, Milwaukee & St. Paul, awarded the first prize in the maintenance division to P. R. Elfstrom, assistant engineer, Chicago, Milwaukee & St. Paul; J. A. Peabody, signal engineer, Chicago & North Western; W. M. Vandersluis, signal engineer, Illinois Central, and H. K. Lowry, signal engineer, Chicago, Rock Island & Pacific awarded the first prize in the signaling division to H. F. Mock, signal supervisor, Chicago & North Western, Green Bay, Wis. The prize winning paper in the general contest is published below in full with more or less complete abstracts of some of the other nine papers which were entered. In addition to these papers one was submitted by Charles E. Parks, assistant editor of the Santa Fe Magazine, Chicago, which was eliminated from consideration for the prizes by the judges on the ground that the author is not strictly a railway employee. In view of the value of the paper, however, it is published in part below.

FIRST PRIZE—THE BEST EXHIBIT EVER HELD

By E. M. Grime,
Supervisor of Bridges and Buildings, Northern Pacific, Dilworth, Minn.

The exhibit of the National Railway Appliances Association held at the Coliseum in Chicago this year, as usual, during the meeting of the American Railway Engineering Association was one of the most comprehensive, instructive and interesting of any of the expositions which have been held since the Association was formed. The floor space covered was not quite as large as on some previous occasions, but this was amply compensated for by the unusually compact and well arranged display booths where each exhibitor made excellent use of the space allotted to him. This year the main entrance was through the annex at the south end of the building and the exit at the old main entrance. This arrangement helped to keep the people moving in the same general direction and saved considerable confusion.

One of the first impressions received by a visitor was the large number of safety devices exhibited this year both for the maintenance of way and the signal departments. This is evidently a result of the "safety first" propaganda which has become such an important feature in every railway man's duties. Among such devices the following may be mentioned:

Several makes of motor inspection cars, comparatively light in weight, some of all-steel construction, with the deck placed practically in the plane of the axles; a lightweight portable derailing frog to which a metal blue flag is attached; a set of rerailing frogs very similar to the design in common use except that by means of a clamp engaging the frog, passing under the rail and held to the rail by a wedge plate, the frog cannot slip or turn and no spiking whatever is necessary; a combination switch stand target and switch lamp in which the target consists of a circular disk surrounding each of the lenses, especially desirable in switch yards where clearance is limited; and a switch locking machine which can be applied to both switches of a cross-over and by which one operation of the lever will unlock, throw and relock both switches insuring safe handling of a crossover movement especially when connected up with switch indicators.

Under safety devices should also be mentioned the exhibit showing a full size locomotive boiler head with the working parts of an automatic train control system which has been in successful use on one railroad for some time and by which the position of the signal controls the engi-

neer's air valve; also the system of train operation and control used particularly by electric railways, by which the movement of every train on the division is represented on a diagram in front of the train dispatcher enabling him to locate a train at any moment, flash a signal to the motorman in the cab, give a meet order, etc.

The exhibit of motor cars was the most extensive yet seen in this line and much interest was taken by the visitors in these displays. Practically every type was represented, from the light weight inspector's car to the official inspection car with canopy top and large seating capacity. A car of special interest was one with an all-steel frame, double chain, friction disk reversible drive, burning kerosene and large enough to carry 10 or 12 men and tools, or a pile of bridge timber, and yet weighing but 1,200 lb. and with the engine so placed that the car can readily be removed from the track when necessary. There were also exhibited two typical designs of electrically operated rubber tired freight house or baggage platform trucks.

The various models of low type switch stands were as usual very attractive to track men. One company exhibited a high tower target to be used with the ordinary low type stand and another model of interest was the low type latch stand with which the switch can be run through without damage to the stand. This is accomplished by means of a special crank pin strong enough for all ordinary usage, but which breaks before the stand is damaged. As these pins can be quickly replaced, this stand should effect a saving in the cost of maintenance of yard switches. An innovation shown in switch targets was an enameled two-piece target. Being enameled they do not soon deteriorate from exposure to the elements and can readily be restored in color by washing with soap and water.

All standard makes of rail joints were well represented and in addition a recent design of joint which consists of but two parts, wedge locked together and combining the functions of a rail chair, rail brace, tie-plate and anti-creeper without the use of bolts. The cost is about the same as that of the angle bars and tie plates which it displaces and it appears to be worthy of careful consideration and test. Further illustrating the reconstruction period in the matter of track fastenings due to constantly increasing wheel loads and speeds, is the variety of anti-creepers shown. In addition to those which have been on the market for several years is shown a malleable iron one-piece anchor which is driven into place with a light hammer. This anchor cannot drop off the rail and is readily readjusted in about the same manner as when first applied. Another anchor consists of a heavy tie plate with a set screw on one side which grips the rail. A third type which is comparatively new has the same wedge action on the base of the rail as the others, but is held in place by an extension against the web of the rail fastened by means of a cotter pin and a hole drilled through the rail.

The new tools which appeal to track men are a clamp to fit over the main rail with a simple lever arrangement by which a switchpoint can be straightened; also a simple wedge arrangement which can be caught under the base of a rail, providing a secure fulcrum against which a bar can be placed when respacing ties. Other labor-saving devices for track men on exhibit as usual were the rail-laying machine operated by three men and the pneumatic tie tamper and drilling machine. Bridge men were particularly interested in a pole or pile pulling jack of 15 tons capacity which can be conveniently operated at an angle when suitable footing is obtainable. Another device interesting to maintenance men is a flexible roller bearing which it is claimed can be applied to hand car or motor car bearings and will reduce the friction by 50 per cent and make a saving of 30 per cent in the fuel consumption of motor cars.

Among special track appliances should be mentioned the so-called continuous railway crossing consisting of triangular manganese plates controlled by levers from the tower in such manner as to be shifted to position on either track as required so as to close the otherwise open throat at the rail crossings. One of these crossings has been in successful use for three years with consequent material reduction in maintenance cost.

Of special interest to water service men were the full size models of water columns. Four manufacturers were represented in this line and it was noticed that each has now adopted the telescopic type of long range drop spout as originated by Johnson or Fenner. Sectional working models of the valves were shown including such important features as rapid drainage to preclude freezing, easy operation, large and quick opening, and balancing by water pressure to prevent water hammer in the pipe lines. An innovation in the line of small steam valves is a type where the valve head and also the seat has a number of thin brass disks which are to be removed one at a time as they become worn or new disks added when necessary, thus insuring a tight valve without regrinding or replacing.

Bridge and signal men were interested in a new type of electrically operated type of crossing gate. Each operating gate head contains a small electric motor to control the operation and one operator can thus handle with ease gates at several street crossings at a distance from the tower. This would seem to be especially desirable for northern latitudes where there is trouble by reason of frost collecting in the air pipes of the pneumatic type of gate.

In the line of concrete should be mentioned several exhibits of the work done with the cement gun, a portable steel form for the erection of concrete water tanks and a concrete fence post machine. A full size reinforced concrete smoke jack weighing only 5,000 lb. attracted much interest and shows the possibilities of the cast iron jack, now such an expense for maintenance, being replaced by concrete which should be proof against engine house gases. A miniature reinforced concrete trestle illustrated the typical design now becoming standard on a number of railways. A full size concrete battery well was shown as well as a portable reinforced concrete waiting station.

Several manufacturers showed some excellent designs of both portable and fixed freight house scales of the dial pattern and it seems that this type will soon come into universal use on account of being much more accurate and quicker in operation than the plain beam pattern.

In the construction line should be mentioned the large size model of a building showing an improved method of glass construction for partitions, skylights, cellar covers, water-proofing compounds, asbestos products of all kinds and a full size asbestos smoke jack; a full size section model of a permanent method of laying underground steam mains in insulated reinforced concrete conduits, providing for expansion by the usual methods, but in addition roller bearings at intervals so the pipe can freely move or be turned or even replaced without disturbing the conduit; and the interesting exhibit of the lumber companies handling Southern pine and Louisiana red cypress.

The value of proper selection of timber for various uses was shown by large size samples and the exhibit of treated timber and the results obtained was very instructive. Examples were shown of practically sound cypress ties which had been in track 30 years and numerous other uses of cypress were shown by samples and photographs. Creosoted wood block floors were shown by several manufacturers. This type of floor with concrete base seems destined to become standard for warehouses, manufacturing buildings and railway shops.

Manufacturers of engineering instruments and office

supplies exhibited a complete line. Draftsmen were interested in a new type of lettering pen which has an ink reservoir similar to a fountain pen and which should be a time saver. Surveyors were shown an improved type of transit having stadia circle and U-shaped standards.

One of the latest designs in nut locks was represented by a roller locking nut. This has been in use two years and several railways are conducting experiments with it.

The signal and electrical supply companies occupied probably 25 per cent of the total exhibit space and the various designs of full size working equipment, such as electrical and mechanical signals with their operating mechanisms, storage batteries, relays, annunciators, switches, time units, switch boards, circuit controllers, oscillators, insulated wire, etc., were the center of interest for a large proportion of the 22,000 visitors who came to the exposition. No less than 20 full size models of wig-wag, illuminated and bell crossing signals were shown, most of them being in continuous operation to facilitate inspection of the working parts. One of the newest types of the wig-wag signal is that with the large red disk which is made as effective by night as by day, by means of red signal lenses illuminated by Mazda lamps. Making 40 or more oscillations per minute through an arc of three or four feet this signal can hardly be overlooked by the most careless automobilist in time to avoid danger.

On the whole this exposition was most satisfactory and was attended by a greater number of visitors than ever before. While the general arrangement was good, it would make some improvement and help the man who has but a very limited time to spend at the show if all the exhibits of a certain class could be grouped in the same location, for ready examination and comparison. It is also suggested that many manufacturers could add to the value of their displays by exhibiting types of equipment or material removed from actual service together with a complete record of performance.

IMPRESSIONS GAINED ON A FIRST VISIT

By Bessie W. Nichols,
Office of General Storekeeper, Illinois Central, Burnside, Ill.

For a long time I had wanted to attend the exhibition of railway appliances held annually at the Coliseum during the March Convention of the American Railway Engineering Association. The opportunity came for me to go this year. The first view of the interior impressed me tremendously. Row after row of tastily decorated booths, glaring red and green signal lights, and the attractive arrangement of exhibits, completed a wonderful display. It was hard to apply one's self to any one exhibit in that immense panorama, but finally with an effort, I commenced examining the different booths in turn.

After walking up and down the many aisles and looking at exhibit after exhibit, it was an agreeable change to accept the hospitality of a good-natured exhibitor and sink gratefully into his arm chair to rest and watch the spectators pass by. There was a fair sprinkling of non-railroad visitors, gazing blankly at some of the devices, evidently wondering what such things could be used for. Deeply tanned trackmen passed hurriedly by the pumps, stand pipes, water tanks and signals, to hover around the rail anchors, motor cars, etc. Office men, taking every opportunity to study the many devices which had before meant little but a name to them, mingled with young engineers, more familiar perhaps with the theory than the practical uses of many of the devices shown.

Sitting there, I thought over what I had seen in the hours spent walking about the building, and decided the benefits to myself were three-fold: First—I had seen many ingenious devices of great practical value; second—I had seen some of the common, every-day articles of railroad life under conditions which gave them a new sense of value in my eyes, and third—I had gleaned many practical points of interest and service from the exhibitors' representatives. In some cases I had gained valuable information regarding material with whose use I had thought myself fairly familiar.

Then I began to ponder over the gigantic scope of the exhibition, and what its future would be. At first thought it was difficult indeed to imagine anything much more complete than the present show, and after much study I could think of only one suggestion which might tend to add to future exhibitions of railway appliances.

Many of the rank and file coming from outlying districts hesitate to aproach the smart appearing men in charge of the various exhibits and ask questions which might expose ignorance or provoke amusement. If each exhibitor would set up at the rear or at one side of his booth a small, neatly framed announcement describing his exhibit, his goods and the purpose for which they were intended, all could readily understand the nature of the device often without it being necessary to ask a single question.

THE VIEWS OF A REGULAR ATTENDANT

By A. M. Clough,
Supervisor New York Central, Batavia, N. Y.

It has been my privilege and my pleasure to attend each of the nine exhibitions that have been held in the Coliseum and Armory at Chicago by the National Railway Appliance Association and I can say without any hesitation that I have returned from all of them a wiser and better (railroad) man; wiser because at each exhibition there is something new or something old greatly improved which we need daily in our particular business; better by coming in contact, talking to and comparing notes with, not only the manufacturing exhibitor, and salesman, but with the men of my own profession, practical railroad men whom it brings together. It is my impression that the exhibition would fall far short of what it now accomplishes were it not for this last feature. Men who are using certain devices tell others of their virtues, bring them to the booth where their super-excellent article is and tell them what it will do, how it will wear, or what saving in labor or expense it will accomplish. I could mention scores of instances where I have done this and where the same has been done to me.

HOW A RAILROAD MAN MAY UTILIZE THE SHOW

By Chas. E. Parks,
Assistant Editor, Santa Fe Magazine, Chicago.

In order to promote the mutual interests of the manufacturer and sellers of railway material and others engaged in railway construction and maintenance work, and to establish cordial and profitable relations between such manufacturers and representatives of steam and electric roads, the exhibit given each year by the National Railway Appliances Association in the Chicago Coliseum serves an excellent purpose.

From the standpoint of the average railroad man, the exhibit is largely educational. It permits him to keep in touch with the latest developments in devices and material used in his work, and at the same time it gives him an opportunity to become acquainted with other devices used in the construction and operation of the road with which he is not familiar, and which perhaps he would have no other chance to become acquainted with. To the exhibitor, an opportunity is given to display his products and maintain friendly intercourse with his associates. By co-operating with railroad men interested, much time and expense can be saved by this annual exhibit.

The exhibits individually can be classified into three gen-

eral groups, signaling, maintenance of way and miscellaneous exhibits. The signaling exhibits as a rule occupied the north end of the building, while the maintenance of way and miscellaneous booths occupied the south end and the annex.

As a class the signaling exhibits were the most complete. Practically every form of signaling device, from the lowly crossing sign to the most complicated block system was shown.

The maintenance of way exhibits were more diversified than those relating to signaling, largely because of the character of the work covered. In reality these exhibits covered maintenance of way, bridges and buildings, and were of equal interest to the contractor, the bridge engineer and the trackman.

One of the most effective demonstrations of a labor saving device was the pneumatic tie-tamping machine. Both rock and cinder ballast was tamped on a standard gage railroad laid down in the booth; afterwards a laborer performed the same work. The contrast was a lesson in itself. Another exhibitor manufacturing bearings demonstrated to the visitor the value of his product by the simple process of pulling a string attached to miniature cars. The lifting power of jacks was demonstrated by mechanical means, as was also the operation of valves. Other demonstrations showed the actual use of the cement gun, the lifting power of pulleys, the principle of the fire extinguisher, the indestructibility of building material by fire, the merits of oil and gasoline engines as shown by the evenness of the water flow, the pulling power of traction engines, and the accuracy of scales. Besides these public demonstrations the exhibitor was always ready to bring out the fine points of his device to those interested.

In some instances it was impossible to set up the device in the Coliseum because of lack of space. In such cases models were used which fully answered the purpose. Among the models which attracted considerable interest were concrete conduits, bridges and buildings of various kinds; water tanks showing the actual operation of pumping water; dredging and spreading machines; miniature stations and grounds, so arranged as to bring out the manufactured products of the exhibitor; and lighting systems.

Some exhibitors devoted their entire space to track specialties, such as rail benders, tie plates, tie spacers, rail joints, bolts, derails, and car replacers. Track tools of every description were shown, and the supply was so diversified that many experienced trackmen confessed their lack of knowledge of many of them.

The largest steel and iron manufacturers in the world have display space at the exhibit every year. Rail of every form and quality are shown, as well as frogs, switches, angle bars, and joints. The merits of the different types and make of rail are comprehensively put forth and the samples showing wear and breaks are of interest to every trackman.

Building material of all kinds were on exhibition, including lumber, roofing, partitions, paving material, paints and varnishes. Some paint manufacturers had specimens of their product on display in various stages of its manufacture, from the ore itself to the finished product. The effect on heated surfaces of heat, cold, expansion, age, etc., made an interesting demonstration.

One lumber manufacturer had an interesting exhibit of his products. Another exhibit that aroused much interest was on the methods of preserving timber against decay. Dozens of samples of the effects of corrosion and decay were shown, side by side with samples of lumber which had been in use for years and which showed very little signs of decay because of previous treatment.

The miscellaneous exhibits were of varied nature, but they were all in some way connected with the successful operation of a railroad. Included in this group were the railway publications, train control systems, flags, motor cars, flood lighting systems, fire extinguishers, and warehouse scales. No railroadman could leave the Coliseum without finding something of special interest to him. While locomotives, cars, shop equipment, etc., are shown in a separate exhibit each year, it is the opinion among railroad men that if these exhibits were combined and a building like the Chicago Municipal Pier secured for the display, the resultant show would be something which every railroad man, from office boy to president, would be anxious to attend. It would be the annual event in the transportation world.

The fact that many railroad officers and employees who have no direct interest in the exhibits shown each year attend these exhibits is indicative of what the attendance might be under the above circumstances. For instance, the railroad clerical force—officers of the auditing department, chief clerks, and the large number of clerks in the general offices, division offices, and station agents and their employees—constitutes a large percentage of the visitors. However, with the exception of one calculating machine, there was nothing of direct interest to this highly intelligent class of railway workers. A booth devoted to office devices, filing systems and methods would have received much attention from these men.

However, no class of railroad employees can fail to benefit by a visit to the exhibit, especially office men. While they are quite familiar with the names and uses of most of the appliances shown, very few understand or have seen them in actual use. The annual exhibit offers this opportunity, and no office man who expects to rise above a mere mediocre should overlook the opportunity to visit the exhibit if he can possibly do so. The same applies to employees in other departments of the service.

SUGGESTIONS FROM OTHER CONTRIBUTORS

Albert H. Woerner, assistant division engineer, Baltimore & Ohio, Connellsville, Pa., analyzes the exhibits as follows: "I would divide them into three classes; one, those that fill the bill in all respects, two, those that partly fill the bill, and three, those that fill the space. In the first class, I would include exhibits that have good competent men who can explain their products in detail and which have, when practical, some method of demonstrating the products. Under the second classification, I would include those exhibits that usually have highly polished models, and a man in the booth who offers various kinds of literature regarding the merits of the products. I would also include in this class those manufacturers who place a salesman or office man in the booth instead of a well-informed engineer who can explain the details and theory of the appliances. Under the third classification, I would designate those concerns which occupy considerable space and have very little to show. I believe that with a little effort many of the exhibits in the second class could be put in the first, and some new concerns could use the space vacated by reductions in the space occupied by those in the third class."

A grouping of the materials and devices exhibited according to their uses is suggested by S. R. Truesdell, assistant engineer, Michigan Central, Jackson, Mich. He says, "The systematic arrangement of the exhibits would be a help to one looking for special devices of any kind who hasn't the time to go through the whole appliance show to find them. For instance, all motor and hand cars might be put on one aisle; frogs, crossings, derails, and special work on another, etc. If there are some exhibits which could not be classified in this way one aisle could be used for miscellaneous exhibits. With such an arrangement and a good diagram on the back of the door

pass or in the official list, labeled according to the sections of the exhibit, it would be a much easier problem for one to see what he wants to, and compare it with similar material or devices without fear of missing any."

The following suggestion for visitors to the exhibit is contained in the paper written by P. R. Elfstrom, assistant engineer, Chicago, Milwaukee & St. Paul, Chicago: "The average railway employee, comes to the the 'railway show,' as he calls it, with the expectation of being entertained. He is not in the right frame of mind to get the full benefit from the exhibition. A certain amount of brain work and investigation is necessary to perceive the developments in the appliances from one year to another, and unless these developments are made more readily discernible he will after two or three years' attendance stay away entirely under the excuse that 'the exhibitions are the same every year.' As a suggestion for a partial remedy for this state of affairs, it is proposed that each exhibitor post in a conspicuous place a large placard calling attention to developments in his product within the past year or two. If no recent developments have been made, the exhibitor could show the unusual features distinguishing his product from all others. This would make it easier for the average attendant to inform himself regarding the progress in railway appliances from year to year, and to derive the greatest benefit from the exhibit."

CONSERVATION OF RAILWAY RESOURCES*

The records of the past winter have strongly emphasized the limitations of our steam railroads and their lack of adequate motive power and rolling stock to take care of abnormal traffic conditions. Part of the failure of our transportation facilities is undoubtedly due to the restrictions placed by the Interstate Commerce Commission on the one hand and the growing demands of organized labor on the other. The result has been seriously to impair the earning capacity of railroads and render this form of security less attractive to the investor.

Admitting the necessity for improved railroad conditions and also looking forward to a more favorable attitude by the government which will attract to this form of investment the enormous new capital that must be expended during the next few years, there remains the all important question as to how the needed additional facilities can be secured for the least increase in capital charge.

Conserving our resources is the work of the immediate future and not the least of these resources is the vast amount of new capital which has been brought to our shores during the past two years. If a considerable portion of this money which is likely to be used in rehabilitating our railroads is spent in the purchase of more steam locomotives, cars and additional tracks, the railroads of the future will still be operated as steam roads and the increased capacity may have been purchased at an almost prohibitive cost.

During the past decade of constantly increasing commodity prices the one conspicuous exception is the cost of electricity. Improvements in the efficiency of turbines, the establishment of large power houses with the most efficient methods of burning coal and the economical development of water powers in advantageous locations have all contributed to more than offset the increasing cost of manufactured products due to greater expenses for material and labor. Electricity to-day is cheaper, more reliable and is available over much wider areas than ever before.

The operation of the heaviest freight and passenger trains by electric locomotives is an accomplished fact. The records of reliability, low cost of maintenance and the flexibility of this new type of power have been amply demonstrated. Not only can present steam service be easily duplicated as regards the weight and speed of trains hauled, but experience has shown that the electric locomotive is free from many of the restrictions placed upon train operation by the steam locomotives. In this country with its ample supply of power available from coal or water, the cost of electricity has been steadily decreasing and there have been remarkable developments in transmission network fed from several sources. The use of 60-cycle current for three-phase transmission has been rapidly increasing for a number of years due to its adaptability for supplying either railway or lighting and industrial loads.

In even this land of apparently unlimited supply of coal the tremendous waste of fuel inherent in steam engine operation cannot much longer go unchallenged. It is food for serious thought to know that one-third the coal now consumed on a steam engine will move the same tonnage by electric locomotives if burned in a large modern power house suitably located in regard to condensing facilities. Local conditions may also be such as to permit of the advantageous combination of ample condensing water available at the mines, thus eliminating any charge for coal haulage and permitting the use of a low and cheap grade of fuel having only a local short haul market. Aside from the low power rate which is made possible by such favorable local conditions, there is the universal benefit to the railroad of relief from the necessity of hauling its own company coal which on mountain grade divisions may readily reach 8 or 10 per cent of the total ton miles hauled behind the engine as represented in coal and carriers.

We are so much accustomed to consider the tender as a necessary part of the steam engine that it is not until the coming of a type of motive power like the electric locomotive that it is realized just how great a part of the operating expense is incurred in hauling this non-revenue company tonnage.

It is conservatively stated that the substitution of the electric locomotive for the steam engine will result in doubling the daily tonnage capacity of a mountain grade division with no addition to the previous track facilities, and will in addition release a large amount of rolling stock by reason of the considerable reduction in running time effected. Under favorable local conditions, therefore, electrification may provide the needed improvements on certain railroad divisions with a smaller expenditure of new capital than would be required to purchase the same results by adding more steam locomotives and tracks.

America is indeed fortunate in being provided liberally with vast resources. Imagine the predicament of having no coal deposits within our borders and being dependent upon outside sources for such a vital necessity. But that is just the case with Italy, and the world war has most convincingly brought home to her the absolute necessity of making proper provision for power under her own control. Fortunately, there is an abundance of water power available and it is quite probable that after the war Italy will attempt to make itself independent of foreign fuel supply, as far as possible, by developing to the fullest extent its own natural advantages of hydraulic power.

In this country with its ample supply of power available from coal or water the fact of the decreasing cost of electricity is becoming fully appreciated as exemplified by the constant development of huge transmission systems fed from a number of available power sites. The use of a frequency of 60 cycles is becoming more and more universal and in a few years bids fair to become the standard frequency for generating and transmitting power with the possible exception of a few restricted localities where 25 cycles is strongly intrenched. In many instances considerable advantage to the railroad company may result from the purchase of power from an outside company rather than to assume the burden

* Abstract of lecture by A. H. Armstrong, delivered at Massachusetts Institute of Technology.

of first cost and the operation of a separate power house devoted solely to supplying the railroad load. The economical generation and distribution of electricity is a highly specialized business in itself and when conducted on a large scale and supplying a diversified load makes possible great reliability and low price for power. Whether power is purchased outside or produced in a railroad power house, it is entirely proper, however, to view the possible electrification of steam roads from the standpoint of power generation and distribution at high voltage three-phase 60 cycles, and a type of locomotive should be adopted that will best meet the severe requirements of diversified haulage and also permit of economical distribution and conversion of power derived from a 60-cycle source.

The matter of cheap reliable power is vital to the success of railway electrification from both an economic and operating standpoint. The general adoption of 60-cycle distribution in this country makes it possible to interconnect adjoining transmission systems, thus opening up wide possibilities in providing cheap power for railway purposes already extending, in some instances, over several divisions. As such large consolidated transmission networks are usually fed from a number of power houses, there is also offered a promise of reliable service hardly possible to equal with a railway power plant except by the expenditure of a prohibitive capital investment. Electric power development and railway electrification, therefore, appear to be most closely related and full appreciation of this fact may do much to lead to a better understanding of the economic and operating advantages of heavy electric traction.

TRAIN ACCIDENTS IN MARCH[1]

The following is a list of the most notable train accidents that occurred on the railways of the United States in the month of March, 1917:

Collisions

Date	Road	Place	Kind of Accident	Kind of Train	Kil'd	Inj'd
6.	Penn.	Norristown.	xc	F. & F.	3	6
23.	Lehigh Valley	Yale.	rc	P. & F.	3	0

Derailments

Date	Road	Place	Cause of Derailment	Kind of Train	Kil'd	Inj'd
1.	N. O. & N. E.	Laurel.	unx	P.	1	3
8.	Penn.	York Furnace.	slide	P.	0	1
11.	Southern	Chattanooga.	flood	P.	0	3
15.	So. Pacific	Ft. Hancock, Tex.	....	P.	2	..
21.	N. Y. Central	Waterloo.	b. wheel	F. & P.	1	17
22.	Penn.	Brilhart.	d. car	P.	0	2
27.	Louisville & N.	Beattyville.	acc. obst.	F.	0	1
29.	Chicago & Alton	Ocoya.	b. journal	F.	2	1
30.	C. C. C. & St. L.	Cleves, O.	b. rail	P.	0	2
31.	St. Louis S. W.	Pine.	.....	P.	0	6

In the collision on the Pennsylvania Railroad near Norristown, Pa., on the 6th a freight train moving eastward from a yard track across the eastbound and westbound main tracks was run into by a westward freight train on the crossover. Three trainmen were killed and six were injured. The westward train had run past a distant and a home signal set against it.

The trains in collision near Yale, N. Y., on the 23rd, were an eastbound passenger train and a preceding freight, the passenger running into the rear of the freight. One conductor, one flagman, and one fireman were killed. The cause of the collision was failure to observe automatic block signals. The passenger train had run past a distant and a home signal set against it. The flagman of the freight failed to place torpedoes.

The train derailed near Laurel, Miss., on the 1st was southbound passenger No. 1; the engine and first two cars were overturned and fell into a creek. The engineman was drowned and 3 employees were slightly injured. The cause of the derailment was not determined.

The train derailed at York Furnace, Pa., on the 8th, was a southbound passenger. The engine was overturned and the engineman was injured. The cause of the derailment was a landslide.

The train derailed near Chattanooga, Tenn., on the 11th was passenger No. 6. The engine and the first two cars ran off the track and fell down a bank, because of the weakening of the roadbed by a flood. Three persons were slightly injured.

The train derailed near Fort Hancock, Tex., on the 15th was westbound passenger No. 9. The engine and first two cars were wrecked and the engine fell through a bridge. The engineman and fireman were killed.

The trains involved in the accident on the New York Central near Waterloo, Ind., on the 21st, were an eastbound freight and a westbound passenger, No. 19. A car in the freight train was derailed by the breaking of a wheel, and, with twelve others, was wrecked. One of the cars fouled the westbound track and the engine and first four cars of the passenger train were, in consequence, thrown off the track. The fireman of the passenger train was killed and two trainmen and 15 passengers were injured.

The train derailed near Brilhart, Pa., on the 22nd, was a westbound passenger. All of the cars went off the track and one refrigerator car was wrecked. Two passengers were injured. The cause of the derailment was excessive side bearing clearance on the refrigerator car.

The train derailed near Beattyville, Ky., on the 27th was a through freight. One trainman was injured. The derailment was due to a large boulder which fell on the track in a cut.

The train derailed at Ocoya, Ill., on the 29th was an eastbound freight. Five cars were thrown off the track and one of them, fouling the westbound track, caused the derailment of a train on that track, the engine of which was overturned. The fireman and the conductor were killed and the engineman was injured. The cause of the first derailment was a broken journal.

The train derailed at Cleves, Ohio, on the 30th was the northbound Royal Palm flyer. The engine and three cars were ditched. The cars were of steel. Two employees were injured. The cause of the derailment was a broken rail.

The train derailed at Pine, Tex., on the morning of the 31st was southbound passenger No. 1. The engine and first two cars were overturned, and four trainmen and two mail clerks were injured.

[1] Abbreviations and marks used in Accident List:

re, Rear collision——bc, Butting collision——xc, Other collisions——b, Broken——d, Defective——unf, Unforeseen obstruction——unx, Unexplained——derail, Open derailing switch——ms, Misplaced switch——acc. obst., Accidental obstruction——malice, Malicious obstruction of track, etc. ——boiler, Explosion of locomotive on road——fire, Cars burned while running——P. or Pass., Passenger train——F. or Ft., Freight train (including empty engines, work trains, etc.)——Asterisk, Wreck wholly or partly destroyed by fire——Dagger, One or more passengers killed.

FRENCH RAILWAYS BEHIND THE FRONT.—Mr. G. H. Perris, in the *Daily Chronicle*, gives a vivid glimpse in a despatch from the French front of the part played by "roads and railways" in the present war. Among other things, he says: "The region is one of large farmlands and small old-fashioned towns far from the main currents of the national life, and ill provided with railways. New roads and railways—especially the narrow-gage lines called 'tortillard —have, of course, been built. Every railhead is a crowded, humming centre of activity which radiates out into a hundred streams of traffic, and every separate stream represents an incalculable mass of unceasing labor and endurance. It is in this immediate rear of the front that one best realizes the essential part railroads play in the organization of war, the influence of the weather, and the connected influence of a good morale on the solution of the transport problem."

To Increase Transportation Efficiency

Shippers Appoint Co-Operative Committees. Howard Elliott Tells of Work Being Done by Railroad Board

A CENTRAL committee with 23 regional committees of shippers to co-operate with the railways and the government in promoting the greatest possible efficiency in transportation during the war were organized at a meeting of the executive committee and nearly 150 members of the National Industrial Traffic League, representing about 80 cities, held at Washington on May 25.

The meeting was held at the suggestion of the executive committee of the American Railway Association Special Committee on National Defense, which recently held a conference with the demurrage committee of the league for the purpose of discussing transportation problems. The idea of committees representing the league was suggested and it was arranged to hold another representative meeting of the shippers to discuss the matter more in detail. At the meeting last Friday Howard Elliott, of the New York, New Haven & Hartford, and a member of the railway executive committee, outlined in detail the work undertaken and accomplished by the railway war board and urged the cooperation of the shippers. After a general discussion the league took action by adopting the following resolutions:

"In view of the present national crisis, the National Industrial Traffic League, thoroughly alive to the necessity of earnest and efficient co-operation with the Council of National Defense, the Special Committee on National Defense of the American Railway Association and any other lawfully authorized body, hereby authorizes and directs the president to appoint the following central and regional committees for this purpose, and that the president, vice-president, secretary and chairman of the executive committee be ex-officio members of each such committee.

"First: A central committee comprised of seven members of the League who shall have general supervision and control of this movement.

"Second: Regional committees at the 23 points at which the railroads have appointed special committees, and at such other points as may be necessary. The duties of these regional committees shall be:

"*a.* To co-operate with the local American Railroad Association committees in adjusting strictly local transportation affairs;

"*b.* To report any local adjustment brought about by provision 'a' to the Central Committee;

"*c.* To report their recommendations on all other matters to the Central Committee for consideration and action."

Work of the Railroad War Board

Mr. Elliott said there had been some misunderstanding, or lack of understanding, about the work of the railroad committee, and he explained in detail its organization, in response to a resolution passed by the Council of National Defense, introduced by Secretary Lane of the Interior Department, that the railroads be requested to organize themselves to secure the greatest expedition in the movement of freight. He said that the resolution creating the committee and authorizing it to direct the operation of the railways during the war has been subscribed to by substantially all the railroads in the United States and in most cases approved by the boards of directors. The Washington organization of the committee now comprises 16 experienced railway officers, 69 general employees and 18 inspectors.

The machinery of the various committees and sub-committees, that have already been described in the *Railway Age Gazette,* is being rapidly co-ordinated so that little lost motion is had after six weeks of work. The committee has had numerous interviews with the French and English commissions and with H. C. Hoover, the food administrator, to try to get a better method of co-ordinating the movement of food products, and satisfactory progress is being made. Mr. Elliott continued:

One of the important steps taken has been to create local committees at 23 different points throughout the United States to help, and report to, and work with, the Commission on Car Service. These committees are at New York in the East, Chicago, St. Louis and Kansas City and Minneapolis in the Middle West, New Orleans and Galveston in the South, Atlanta and Birmingham in the Middle South and San Francisco and Seattle on the Coast, and in other cities. The chairman in each case is an operating officer with headquarters at the city, and the lines in the city are all represented on the committee. The work is done by the various railroad officers as a part of their regular duty, and they do not become directly a part of the staff of the American Railway Association, although in one or two cases the work has been of sufficient magnitude at a given terminal to warrant the employment of a special man to do nothing but try and help out at that point. In that case he is paid by the terminal lines.

The railroads have gone into this whole-heartedly, and, I think, unselfishly; the estimated cost for a year of the work that I have outlined, which will be paid by the American Railway Association, not counting the payment by the railroads direct to their officers and employees, will be in the neighborhood of $500,000—quite a substantial contribution to the effort to get the maximum work out of the present American railway systems.

Our relations to the Council of National Defense are very close. We hope to have the closest kind of co-operation with that council and with the Advisory Commission. We are designated, I believe, in their chart, as a co-operative committee, and through Mr. Willard we work very closely with them.

We also work very closely with the Interstate Commerce Commission and Commissioner Edgar E. Clark sits with us often. Of course he has not been able to do so during the rate hearing, but his experience and advice have been of great value to the main committee in the work that it is trying to do.

It is the ambition of the committee and of those that we represent to try to make the railroads of the United States of the highest service to the country at a time which is really more serious and critical than perhaps the people of the United States as a whole realize. At the same time, we must not forget, it is our duty not to forget, that we must be faithful to the trust that has been imposed upon us by the owners, directors and officers of the 250,000 miles of railroad in the United States, of the approximately million and a half security holders, and approximately two million employees, representing perhaps, with those dependent upon them, nearly one-sixth of our population.

We have been given very large powers by the railroads, which we are trying to exercise with judgment and discretion.

We have done a number of things. One of them was to issue what we call our efficiency circular, in which we point out certain well understood things about the use of equipment, such things as nearly all railroad managers are trying to do all the time, but which at this critical time are more important than ever before. In making these suggestions it was our aim to stimulate the most earnest activity on the part of

every one on the railroad payroll to do the best he could, and to get, so far as possible through such a circular, the friendly co-operation of just such men as you and the interests that you represent. Then we make a report once a week to the Council of National Defense. I have here a report, the first of them, which was made on May 18, which sums up the more important things that we talked about and tried to dispose of, a report to Mr. Willard for the general information of the Advisory Council and for the council itself. The report takes up three pages and covers 18 topics, from among the very large number that we considered, but which 18 we thought were of sufficient importance to make a statement of.

The committee has been practically in continuous session since April 23. We generally go home on Saturdays, and sometimes for Mondays to try to look after such railroad business as we have.

We have made an investigation into the general situation of the country with respect to coal supplies. This is one of the most serious things confronting the country, especially in those regions far distant from the mines. The matter is receiving very constant attention by our committee, by the Car Service Commission, by the Committee on Coal Production, and by the Department of the Interior.

The same thing is true of iron ore. This must be attended to so that the necessary amount of ore and steel can be made for the use of the government and for manufacturers who are making things for the government.

Then we have amended our car service rules, and liberalized them somewhat, in the belief, which is supported somewhat by the results during the first few weeks, that we would get a better general distribution of cars, and a more general use of them.

At the request of the national council we organized a committee of five experienced railroad men who sailed from Vancouver, I think, on May 14, for Russia, to do what they could in co-operation with the Russian authorities to help the situation on the Trans-Siberian Railroad. Those gentlemen are due over there, I think, on the 28th or 29th.

We have also taken the position and conveyed it to the group of chairmen of these different departments that, for the purpose of conserving railroad energy in every possible way, there should be a cessation of the effort to try to stimulate large movements of people, thus taking locomotives, perhaps, out of freight service, and using fuel and man power that could be better used for moving fuel, food and materials. No order was given, but it is merely a suggestion that it would be a wise thing at the present time.

One very important thing which the committee initiated and that is now being perfected, and is working in part, was the pooling of coal at Lake ports in the interest of efficiency and expedition of movement. There must be moved from lower Lake ports to the upper Lake ports probably 150,000 tons of coal a day from now until the close of navigation, to give the Northwest the supply it would like, and the same boats must bring back the necessary ore for the needs of the country.

Another important item that we took up at the request of the council, and somewhat at the request of the representatives of France, was to try to organize in some way so-called regiments of men who would go to France and help rehabilitate their railways and their motive power and rolling stock, and in that way help them to go on with the terrible struggle in which they are engaged, and also to obtain for the railways certain rails and other materials which they need. That work is going on and considerable progress has been made. Four men have already gone to France, and upon arrival there will make a cable report as to what they think the immediate necessities are so that we can work on the matter on this side. Some of these regiments have already been raised and it is hoped that all of them will be completed before long and we hope that they will move to the other side in a few weeks.

This committee, through its sub-committee, the Car Service Commission, has dealt with a very large number of requests for immediate movement of this commodity or that commodity to try to prevent the shutting down of a public utility plant or of some manufacturing plant.

We have also perfected, in connection with the proper officers of the Army, a complete scheme of co-operation for the movement of troops and supplies of every description. That has been quite a large piece of work. The clerical and paper part of the work has been done by the committees on freight tariffs and passenger tariffs. We have had several meetings with representatives of the Department of Agriculture, and with representatives of Mr. Balfour's party about the movement of food supplies, and we are told that the result has been satisfactory to those gentlemen, and that the various food supplies have been moving from inland points to the coast.

We have had meetings with a great many committees to discuss the general situation in different parts of the country. We had a most interesting meeting with commissions of the various states; we have had a very frank talk with them and they with us, about the great need of co-operation with this committee, and of avoiding conflict between state and national authority.

We have also been called upon by representatives of the House committees and Senate committees on interstate and foreign commerce; we have been called upon two or three times to go and explain to them what we are trying to do.

Work of the Car Service Commission

Our Car Service Commission is really one of the most important committees; important to us, important to the country and important to those you represent. They work continuously, and they have their inspectors going out over the country. They have created the 23 sub-organizations, and no doubt will create more as the necessities arise. They make us a weekly report and I have the report here dated May 19, which takes in 12 pages of closely written matter, and covers 23 different subjects.

They discussed at their first meeting the question of providing permanent machinery for action in all of the 23 different railroad centers where local committees were formed. As I said, that is of vast importance to you, gentlemen, because it gives you and the railroads a meeting point where I hope everything will be talked out in the utmost frankness and with the greatest spirit of co-operation.

Then they check up and report on the number of bad order freight cars, and give the figures to our main committee. If we think there is any undue amount of bad order cars on any given road we ask them to make renewed efforts to bring the cars up to standard. They have done a great deal in regard to completing orders of the Allies for food supplies. Here are two pages giving in detail the food supplies that have been hauled from interior points to coast cities. Then, under the pledge given by the railroads that they would obey the orders of this committee, they have begun to give definite orders to different railroads for the actual movement of empty cars from one section to another. For instance, the Boston & Maine was asked to forward 2,000 empty cars west, at the rate of 200 a day. They check up to see that the order is obeyed. The North Western was asked to forward 300 box cars to the L. & N. and 200 to the Southern. The Nickel Plate was asked to deliver 500 empty box cars to the Clover Leaf. The Southern Railway was asked to forward 1,700 box cars, 1,200 to the Mobile & Ohio, and the balance to the other roads. The Pennsylvania was asked to forward 5,000 empty box cars, and the C. H. & D. was asked to deliver 300 empty box cars. The New York Central Lines were asked to forward excess box cars west. As far as we know the railroads are responding to these orders to the best of

their physical ability. There has been no evidence of a desire to evade the orders of the committee.

Then a large part of the time of this Car Service Commission has been taken up with many hundreds of communications about the details of open top cars, which, on account of the food situation and the situation at manufacturing plants, and some questions about sand and gravel, is a very difficult question. Each question, as it comes up, has to be handled according to the best judgment and discretion possible for the Car Service Commission to exercise, and possible for our committee to exercise when the Car Service Commission comes to us for further advice.

The movement of open top cars has been checked very carefully, and the committee thinks that the orders to get the open top cars back to the coal producing roads is, in the main, being observed very generally.

The fuel situation, I am frank to say, is one that gives our committee the most concern at the present time. We hope it will be worked out without having to give more drastic orders in regard to the movement of open top cars entirely in the fuel business. The gentlemen interested in the movement of fuel and ore are very insistent that all open top cars be put into that business regardless of other necessities. That, of course, would be a very drastic move. But if the country cannot get its fuel without such an order it is conceivable that it may have to be given. However, that can, in my judgment, be avoided by the closest kind of co-operation between the coal miner, the coal mine owner, the lake carriers, the railroads and the coal users.

Another thing to which we have paid a great deal of attention has been the intensive loading of cars. You gentlemen and your association have been and can be of the greatest assistance in this matter. We have a large number of examples here, several pages, showing that a given amount of business has been moved this year with a lesser number of cars than if the minimum weight used a year ago had been prevalent.

Since November 1, 1916, 44,063 freight cars have been placed in service. There are now on order 104,917 cars which presumably should be delivered prior to January 1, making the total addition since November 1, 148,980 cars, with an average capacity of something over fifty tons. The open top cars have an average capacity of something over 53 tons. There were 989 locomotives placed in service since November 1, and there are 2,209 on order, making a total of 3,188 that should be introduced into service by the railroads prior to January 1, although some of the locomotives may not be delivered until after the first of January, owing to the crowded condition of locomotive shops and to foreign orders. These locomotives have an average tractive power of 54,000 lb. which, as you know, is above the present average for the United States.

We have in this country, in round figures, two and a half million cars. Our report of May 1 shows a shortage of about 150,000 cars, or a little over a half of one per cent. Now, with the earnest co-operation of everyone in the railway service and the earnest co-operation of everyone in industrial life, everyone using a car, that shortage might be entirely eliminated, as it is not a very large percentage of the total cars. But it is only fair to point out to you and to ask you to point out to your commissions and associates, that, do the best we can—the railroad system of the United States is trying to serve 100,000,000 people—there is a high tide of business activity, coupled with the demands of the government and of the allies, which creates a condition that is serious and which may result in the necessity of having the non-essentials used by the people give way to the essentials. That is to say, it is obviously going to be better for this country to move food, fuel and raw materials than to move luxuries. For that reason we have directed the attention of the group chairmen, and have given a great deal of attention ourselves to a study of the passenger train schedules of the United States, on the theory that in this crisis, which is more serious than the people of the United States as a whole realize, it may be necessary to reduce the amount, and possibly somewhat the character of train service, not for the purpose of making money for the railroads, but simply for the purpose of trying to save man power, engine power and fuel power, and devote that conserved power to the essentials, the moving of food, fuel and raw material. As an incident to the passenger train situation there has been created a sub-committee on express transportation, with representatives of the American, the Wells-Fargo and the Southern express companies, and that committee will work closely with our Car Service Commission and with our committee in trying to get the most out of every passenger train movement.

Of course we hope, and you hope, that by increasing the efficiency of existing plants we shall be able to serve all. But it may be that we cannot do it, and if we cannot do it, why, then, we have all got to do the best we can, and, as I say, take the essentials first and not cry about the failure to move non-essentials.

How the Shippers and Public Can Co-operate

I have told you something about organization and what we are trying to do; and the question now is, how can you help. I know you want to help. You are all business men. You represent very important communities and your lines of communication cover the whole United States. If you can take the story of our efforts, of our organization and our desires and hopes and ambitions back to your respective communities, you will help arouse the public to the difficulty that confronts the nation and impress upon it that high speed in all kinds of preparation is absolutely necessary. You can help make everyone understand that each man, woman and child must do his maximum work if we are to win this war. You can help the railroad officers and their employees try and obtain 100 per cent efficiency of the railroad so as to make the railroads more effective than ever before, so as to help out our allies in the winning of the war. You can show that the misuse or the bad use of a railroad car, a freight house or any other railroad facility at this time is a selfish act and an unpatriotic act which makes it harder to win the war. You can, with us, co-operate with the state and national commissions and with the state and national governments, and with municipal governments to remove the restrictive laws that decrease efficiency; that is, remove them during the period of the war, so that we can win the war more quickly. You can work with the municipal authorities and others in seeing that certain kinds of public work which are desirable but not necessary, are postponed if there is a pinch in the total transportation capacity of the country, thus devoting more man power, more car power and more railroad power to those essentials that must be moved if we are to win the war.

Then you can do what was suggested to a small committee of you that met with us some two weeks ago. You can in some way organize yourselves as the railroads have and create a representative committee with large powers, with powers to enforce their recommendations and orders upon those who join the committee, with the full power and intent to co-operate in every reasonable way with the Council of National Defense and with this so-called Railroad War Board. In order to do this no doubt you have got to get on a platform somewhat similar to that of the railroads.

Your problem is more complicated in a way because you have diverse interests, but you can, in my judgment, obtain a very large measure of co-operation, and I believe you will, and by so doing, you will help the country, yourselves and the allies, to put an end to this desperate condition.

Up to the present time our committee has had very fine support and co-operation from all kinds of people, including

many in this room; from all kinds of business men. But this co-operation must continue and increase if we are to accomplish what the country wants and what you want and what every good citizen wants. There has got to be patience, courage, and no doubt considerable self-denial and the giving up of many things that we have been accustomed to in the wonderful prosperity of this country during the last few years.

I haven't the slightest doubt, myself, that we shall win this war, but we shall win it sooner, and we shall end the awful struggle if everyone will at once realize the magnitude of the task that we have undertaken and will mobilize and coordinate very promptly the marvelous man-power, money-power and the business organization and manufacturing industries of this wonderful United States, and apply those powers for the sole and only purpose of supporting the allies and the government, so as to maintain the highest ideals of civilization.

Mr Elliott gave a somewhat similar talk later in the day before the Editorial Conference of Business Papers.

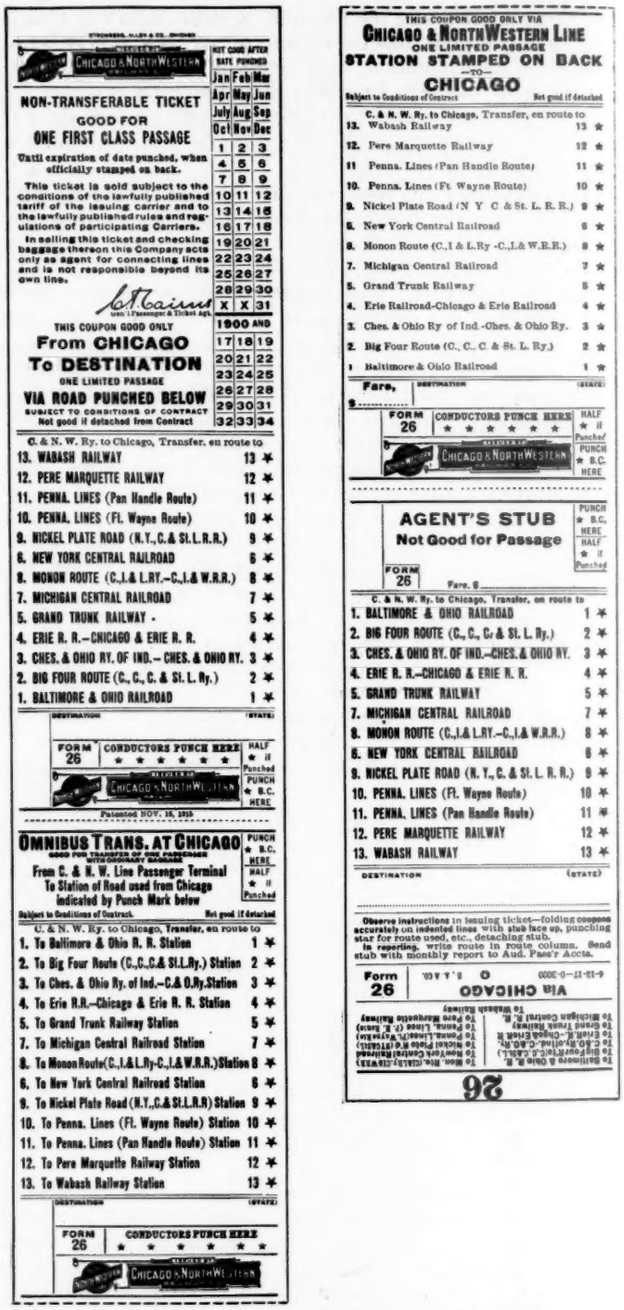
Mr. Elliott's address was a general outline of the principal activities of the Railroad War Board since its organization. It has also requested the Council of National Defense to define the government policy with regard to the enlistment of machinists or other skilled railway employees, to avoid so far as possible the depletion of forces necessary for the efficient operation of the railways. In response to a statement of the needs of the French railways the committee is canvassing the country for the material necessary for their rehabilitation and is promoting the enlistment of the nine reserve engineer regiments. It has also arranged for the movement of coal for naval use from the mines located in West Virginia to the Pacific coast in box cars instead of in open cars, in order to prevent the uneconomical empty haul of open cars from Pacific coast points back to the east.

CONDENSED INTERLINE TICKETS

Improved and shorter contracts for one-way interline (coupon) tickets are being adopted by the railroads following the work and recommendation of the ticket committee of the American Association of Passenger Traffic Officers, of which E. L. Bevington is chairman. The new contracts contain only the fundamental conditions stated concisely and are therefore more likely to be read by passengers. The arrangement of date, class and other matter is more compact and gives the ticket a more business-like appearance. It is about one-third shorter than the old contract.

The Chicago & North Western has adopted the standard vertical type of multi-route interline tickets, after practical use of the tickets side by side with the horizontal type of multi-route tickets for over two years. A canvass of views disclosed a marked preponderance in favor of the vertical type. It corresponds in width and appearance with the regular single route tickets, fits readily into coupon ticket cases and is favorably regarded by passengers as well as agents and conductors. The vertical form, on account of its compact and more adaptive arrangement according to the number of routes to be covered on the given form, is reported to be from 30 to 35 per cent less expensive than the horizontal type. The illustration shows the coupons of the vertical multi-route form with the improved short contract.

The multi-route tickets, which were described in an illustrated article in the issue of the *Railway Age Gazette* of April 21, 1916, carry a number of through routes on one form of ticket and effect a great reduction in the number of forms of interline tickets required to cover connecting lines. For example, one form via issuing line to Chicago, 4 lines thence to St. Louis, and 12 terminal lines from St. Louis, takes the place of 48 single route forms; a form via issuing line to Ogden or Salt Lake City, 2 connecting lines thence to Denver, 3 lines Denver to Omaha, 6 thence to Chicago, 5 Chicago to Buffalo and 7 terminal lines from Buffalo, would serve in place of 1,260 single route forms. The multi-route


CHICAGO & NORTH WESTERN
NON-TRANSFERABLE TICKET
GOOD FOR
ONE FIRST CLASS PASSAGE
Until expiration of date punched, when officially stamped on back.
This ticket is sold subject to the conditions of the lawfully published tariff of the issuing carrier and to the lawfully published rules and regulations of participating Carriers.
In selling this ticket and checking baggage thereon this Company acts only as agent for connecting lines and is not responsible beyond its own line.
THIS COUPON GOOD ONLY
From CHICAGO
To DESTINATION
ONE LIMITED PASSAGE
VIA ROAD PUNCHED BELOW
SUBJECT TO CONDITIONS OF CONTRACT
Not good if detached from Contract
C. & N. W. Ry. to Chicago, Transfer, en route to
13. WABASH RAILWAY 13
12. PERE MARQUETTE RAILWAY 12
11. PENNA. LINES (Pan Handle Route) 11
10. PENNA. LINES (Ft. Wayne Route) 10
9. NICKEL PLATE ROAD (N.Y.,C.& St.L.R.R.) 9
6. NEW YORK CENTRAL RAILROAD 6
8. MONON ROUTE (C.,I.& L.RY.–C.,I.& W.R.R.) 8
7. MICHIGAN CENTRAL RAILROAD 7
5. GRAND TRUNK RAILWAY 5
4. ERIE R. R.–CHICAGO & ERIE R. R. 4
3. CHES. & OHIO RY. OF IND.–CHES. & OHIO RY. 3
2. BIG FOUR ROUTE (C., C., C. & St. L. Ry.) 2
1. BALTIMORE & OHIO RAILROAD 1
DESTINATION (STATE)
FORM 26 CONDUCTORS PUNCH HERE
HALF ★ if Punched
PUNCH ★ B.C. HERE
Patented NOV. 16, 1915
OMNIBUS TRANS. AT CHICAGO
GOOD FOR TRANSFER OF ONE PASSENGER WITH ORDINARY BAGGAGE
From C. & N. W. Line Passenger Terminal
To Station of Road used from Chicago
indicated by Punch Mark below
Subject to Conditions of Contract. Not good if detached
C. & N. W. Ry. to Chicago, Transfer, en route to
1. To Baltimore & Ohio R. R. Station 1
2. To Big Four Route (C.,C.,C.& St.L.Ry.) Station 2
3. To Ches. & Ohio Ry. of Ind.–C.& O.Ry.Station 3
4. To Erie R.R.–Chicago & Erie R. R. Station 4
5. To Grand Trunk Railway Station 5
7. To Michigan Central Railroad Station 7
8. To Monon Route(C.,I.& L.Ry-C.,I.& W.R.R.)Station 8
6. To New York Central Railroad Station 6
9. To Nickel Plate Road (N.Y.,C.& St.L.R.R) Station 9
10. To Penna. Lines (Ft. Wayne Route) Station 10
11. To Penna. Lines (Pan Handle Route) Station 11
12. To Pere Marquette Railway Station 12
13. To Wabash Railway Station 13
DESTINATION (STATE)
FORM 26 CONDUCTORS PUNCH HERE
THIS COUPON GOOD ONLY VIA
CHICAGO & NORTH WESTERN LINE
ONE LIMITED PASSAGE
STATION STAMPED ON BACK
—TO—
CHICAGO
Subject to Conditions of Contract. Not good if detached
C. & N. W. Ry. to Chicago, Transfer, en route to
13. Wabash Railway 13
12. Pere Marquette Railway 12
11. Penna. Lines (Pan Handle Route) 11
10. Penna. Lines (Ft. Wayne Route) 10
9. Nickel Plate Road (N Y C & St. L. R. R.) 9
6. New York Central Railroad 6
8. Monon Route (C.,I & L.Ry -C.,I.& W.R.R.) 8
7. Michigan Central Railroad 7
5. Grand Trunk Railway 5
4. Erie Railroad-Chicago & Erie Railroad 4
3. Ches. & Ohio Ry of Ind.-Ches. & Ohio Ry. 3
2. Big Four Route (C., C., C. & St. L. Ry.) 2
1. Baltimore & Ohio Railroad 1
Fare,
DESTINATION (STATE)
FORM 26 CONDUCTORS PUNCH HERE
HALF ★ if Punched
PUNCH ★ B.C. HERE
AGENT'S STUB
Not Good for Passage
FORM 26
Fare, $
C. & N. W. Ry. to Chicago, Transfer, en route to
1. BALTIMORE & OHIO RAILROAD 1
2. BIG FOUR ROUTE (C., C., C. & St. L. Ry.) 2
3. CHES. & OHIO RY. OF IND.–CHES. & OHIO RY. 3
4. ERIE R. R.–CHICAGO & ERIE R. R. 4
5. GRAND TRUNK RAILWAY 5
7. MICHIGAN CENTRAL RAILROAD 7
8. MONON ROUTE (C.,I.& L.RY.–C.,I.& W.R.R.) 8
6. NEW YORK CENTRAL RAILROAD 6
9. NICKEL PLATE ROAD (N. Y., C. & St. L. R. R.) 9
10. PENNA. LINES (Ft. Wayne Route) 10
11. PENNA. LINES (Pan Handle Route) 11
12. PERE MARQUETTE RAILWAY 12
13. WABASH RAILWAY 13
DESTINATION (STATE)
Observe instructions in issuing ticket—folding coupons accurately on indented lines with stub face up, punching star for route used, etc., detaching stub.
In reporting, write route in route column. Send stub with monthly report to Aud. Pass'r Accts.
Form 26
Via CHICAGO
98

Improved Short Contract, Three Coupons and Agent's Stub of Vertical Type Multi-Route Ticket

ticket is accordingly a great saving in ticket offices and facilitates reducing the number of forms to be carried on the report blank and the auditor's office books.

TRAVELERS SHOP ON CANADIAN TRAINS.—The Canadian Northern has established on its trains between Toronto and the Pacific Coast, a travelers' shop, in charge of the observation car porter, the stock containing a wide range of articles, from shoe laces and collar buttons to smelling salts and bon-bons.

THE RAILROADS AND THE LIBERTY LOAN

The railroad officers and employees who carry the country's passengers and freight are going, it would seem, to "carry" also a good block of the country's Liberty Loan. A number of the roads have already subscribed to large quantities of bonds for themselves and road after road has announced plans whereby it will assist its officers and employees to subscribe on the partial payment plan.

A. H. Smith, president of the New York Central, is chairman of the Liberty Loan Committee of Railroads which has addressed a circular letter to over 1,000 railroad presidents asking for their co-operation in assisting railroad officers and employees to subscribe for Liberty Bonds. The committee consists of A. H. Smith, chairman; F. D. Underwood, president of the Erie; W. H. Truesdale, president of the Delaware, Lackawanna & Western; Henry Walters, chairman of the board of the Atlantic Coast Line; Walker D. Hines, acting chairman of the executive committee and general counsel of the Atchison, Topeka & Santa Fe; L. F. Loree, president of the Delaware & Hudson, and John B. Dennis, of the New York banking firm of Blair & Co. H. W. Burnham, special assistant on the president's staff of the New York Central, is secretary.

The committee's appeal for co-operation, issued on May 23, was in part as follows:

"The immediate success of the Liberty Loan is essential to the final victory of the United States in its war for freedom. To make the loan a real success and to pave the way for the success for future issues, the loan must be widely distributed and must be paid for out of the future earnings of the people, so that a great number of persons may be holders of the bonds and all the people be encouraged to economize and pay in part for the war out of their future savings. There are more than 1,500,000 men engaged in the transportation industry whose annual wage earnings are approximately $1,500,000,000, or $4,000,000 a day. These figures forcefully show the great opportunity and necessity of enlisting the savings of the railroad officers and employees.

"There can be no doubt that the railroad men are anxious to do their part for the common cause, but as the great majority of them will be needed to operate the railroads—an indispensable arm of the national defense—opportunity must be given to them to assist by helping through their subscriptions to the Liberty Loan. The material and moral effect of such co-operation from such a large body of patriotic men can hardly be estimated.

"This general committee has been formed to aid in providing the machinery for the men to subscribe for the bonds and pay for them in installments out of their future earnings and in a manner that will promote the general welfare and cause little hardship. It is hoped that the plan will have the support of all the railways, and that each railroad through its proper officers will so organize that practically all the men in all the departments will have the opportunity to participate. The work, to be helpful, must be immediate and thorough.

"It is hoped that your company will actively co-operate in placing before all its officers and employees the opportunity to perform this patriotic service. It is assumed that considerable personal work will be required and to that end each company will probably find it desirable to appoint committees of officers or employees who will give their immediate attention to the work so that it may be completed as rapidly as possible. While each company will probably find it desirable to adopt machinery and methods of appeal suited to its own organization, we enclose by way of suggestion a draft of circular to be brought promptly to the attention of officers and employees, and a draft of subscription blank."

Responses have been received from all of the more important railroad companies of the country, enthusiastically endorsing the plan proposed, and assuring the committee of their hearty co-operation in making it effective. Each railroad has been asked to report semi-weekly to the committee the total subscriptions received from its officers and employees, and a record will be kept in the office of the committee at the Grand Central Terminal, New York, of the progress and results of the country-wide campaign.

In last week's issue, the *Railway Age Gazette* gave the details of the plans which had been adopted by the Union Pacific, the Texas & Pacific and the Pennsylvania to assist their officers and employees to subscribe to the Liberty Loan on the partial payment basis. The good work still goes on, for during the past week similar plans have been announced by the Southern Pacific, the New York Central and associated lines, the Buffalo, Rochester & Pittsburgh, the Southern Railway, the Lehigh Valley and other roads.

The New York Central has issued over 140,000 copies of its circular to employing officers over the entire system, with instructions to have them placed promptly in the hands of all employees, in order that each individual in the employ of the company may have ample opportunity to subscribe prior to the date of closing the subscription books. Instructions have also been issued that copies of the circular should be posted in conspicuous places on bulletin boards at all stations, yards, roundhouses, conductors' rooms, and other assembling places of employees; and in conspicuous places in the general, division and local offices. Each employing officer will collect the subscriptions of employees under his jurisdiction, and forward them daily to the treasurer at the Grand Central Terminal, New York.

The railway supply companies are also joining in the good work. The General Electric Company has not only set aside $5,000,000 for the purchase of Liberty Bonds on its own account, but will also assist its 79,000 employees to subscribe on the basis of $1.00 per week on a $50 bond; $2 on a $100 bond, $10 on a $500 bond, etc., or by monthly payments of 10 per cent of the subscription each month.

The Brotherhood of Railroad Trainmen has subscribed for $150,000 of the Liberty Bonds. The money is to come from the accumulated funds of the organization and the subscription will not interfere with individual subscriptions by the members of the brotherhood.

The plans adopted by the various railway and supply companies vary slightly, but most of the plans adopted require either the payment of 10 per cent of the amount subscribed monthly or else divide the payments into 10, or perhaps into 12, monthly installments. The Southern Pacific plan is about the most liberal plan announced, that road requiring the payment of only $2 a month on a $50 bond, $4 on a $100 bond, etc. In nearly all the plans, the payments are deducted from the wages as the installments come due. The railroad holds the bond and collects the interest of 3½ per cent thereon until all the employee's payments are made and the bond is placed in his possession.

The railways and supply companies are not only helping their employees subscribe, but many of them are subscribing for large blocks of the bonds for themselves. A partial list of such subscriptions follows:

Norfolk & Western	$2,000,000
Pennsylvania Railroad	5,000,000
Southern Pacific	5,000,000
Union Pacific	5,000,000
Canadian Pacific	1,000,000
Pullman Company	1,500,000
Barrett Manufacturing Company	250,000
General Electric Company	5,000,000
Brotherhood of Railroad Trainmen	150,000

Advertising the Loan

Some of the roads are also getting in some good work in the way of advertising the Liberty Bonds to their patrons. "Have you bought your Liberty Bond?" is the way the Southern Pacific writes it. Every advertisement carried by

the company in newspapers throughout the Pacific Coast carries the slogan. Everyone of the 36,000 pieces of mail matter sent out daily from the general offices of the company in San Francisco carries this slogan affixed by a rubber stamp; all dining car menus ask the question of patrons. Soon all station waiting rooms and ferryboats will display Liberty Bond posters. The Southern Pacific semi-monthly Bulletin, which reaches 45,000 employees, also calls attention to the Liberty Bonds.

OCCUPATIONS AND REMUNERATION OF ENGINEERING GRADUATES

By C. H. Benjamin

Dean, School of Engineering, Purdue University

For several years it has been the custom of the registrar of Purdue University to keep a record of the occupations of graduates and at stated intervals to prepare an occupational summary in which are shown the various occupations and the numbers of graduates pursuing them.

From such a list published in the Alumni Register of the University for the year 1915, the writer has selected certain figures bearing particularly on the work of graduates from the schools of civil, electrical and mechanical engineering. Chemical engineering was omitted, as this school graduated its first student as late as 1909. The occupations selected from this list were thus classified.

1. Manufacturing including the production of heat, light and power.
2. Construction work, including contracting.
3. Transportation, railway work, telephone and telegraph.
4. Mercantile work, including real estate and insurance.
5. Public employment by United States, state or municipality.
6. Educational work.
7. Consulting work.

TABLE I.

CLASS A—*Number Engaged in Various Occupations.*

Work	Total	Eng.	Sales	Mgr.	Prop.	Chf. Eng.	Draft.
Manufacturing	60	19	14	11	4	5	5
Construction	18	10	...	...	6	...	...
Transportation	13	11	...	...	...	...	...
Mercantile	15	...	...	...	...	...	...
Public Emp.	11	7	1	1	...	...	...
Education	9	...	...	...	...	...	...
Consulting	5	...	...	...	...	...	...
Totals	131	47	15	12	10	5	5

NOTE—Some of those replying did not state exact nature of occupation. Six farmers reported.

Some of the above have been subdivided as follows: (a) engineering; (b) sales; (c) management; (d) proprietorship; (e) foremanship; (f) drafting.

Two classes graduating ten years or more ago were selected for comparison and will be called classes A and B. Class A graduated one year earlier than Class B and the classes contained respectively 131 and 146 engineers who reported.

Tables 1 and 2 show the distribution of these men in the various divisions and subdivisions of the profession.

TABLE II.

CLASS B—*Number Engaged in Various Occupations.*

Work	Total	Eng.	Sales	Mgr.	Prop.	Chf. Eng.	Draft.
Manufacturing	80	29	14	16	8	10	3
Construction	19	8	1	4	6	...	...
Transportation	25	17	...	7	...	...	1
Mercantile	6	...	...	...	3	...	...
Public Emp.	8	...	...	...	...	...	...
Education	8	...	...	...	...	...	...
Consulting	...	...	...	...	...	...	...
Totals A	146	54	15	27	17	10	4
Totals B	131	47	15	12	10	5	5
Grand Totals	277	101	30	39	27	15	9

NOTE—Four farmers reported.

Roughly speaking, one-half of the graduates are engaged in manufacturing; also of these one-third are employed in strictly engineering work. Twenty-eight, or one-fifth, are in the sales department and about the same number hold managerial positions. Thirty-seven, or about one-seventh of the whole number, are engaged in construction work and about the same number are employed by transportation companies. Considering the totals for both tables we find over 100 men occupying engineering positions, 30 in sales departments and 39 men holding executive positions. That about one-seventh of the number should be in administrative work at the end of 10 years speaks well for their ability and training. Furthermore, 27, or 10 per cent of the entire number, are in business for themselves, principally in manufacturing or construction.

Figures are available for the tenth year incomes of about half of the men listed in the tables and are summarized in Tables 3 and 4 for the two classes. While these values are incomplete they do serve for comparison of the relative incomes in different occupations. On account of the numbers involved the figures for those men engaged in manufacturing, construction and transportation are the most reliable.

In manufacturing the average income for purely engineering positions is naturally less than the others considered and less than the general average. Positions in the sales departments are most remunerative with managerial positions a close second.

In construction work the general average is raised by the income of one proprietor who reports $12,200 as his annual stipend. Leaving this aside, however, the incomes are in most cases considerably larger than those of manufacturing men. The average income of an engineer in the manufacturing plant is about $2,400 at the end of ten years, while in construction work a similar position pays nearly $3,200.

The most noticeable fact in these two tables is the relative lowness of incomes in railway service as indicated in the third group. While this group includes men employed in telephone or telegraph work, the greater number are railway employees. The average income of graduates employed in the engineering departments of railways is about $1,750 as against $2,400 in manufacturing and $3,200 in construction work. We frequently hear complaints from railway managers that graduates do not stay with them but leave their positions at the end of a few years. The reason is apparent.

TABLE III.

CLASS A—*Average Incomes in Various Occupations.*

Work	Total	Eng.	Sales	Mgr.	Prop.	Chief Eng.	Draft.
Manufacturing	$2,697	$2,624	$2,900	$3,337	$1,800	$2,446	$1,467
Construction	3,364	3,340	...	...	4,100	...	...
Transportation	1,763	1,826	...	...	...	...	...
Mercantile	2,880	...	...	...	...	...	...
Public Emp.	2,596	2,456	3,300	...	...	...	...
Education	2,318	...	...	...	...	...	...
Consulting	4,067	...	...	...	...	...	...
General Average	$2,630						
Maximum	6,800						
Minimum	1,040						

NOTE—The number of graduates furnishing income statistics was slightly over one-half of the whole number.

TABLE IV.

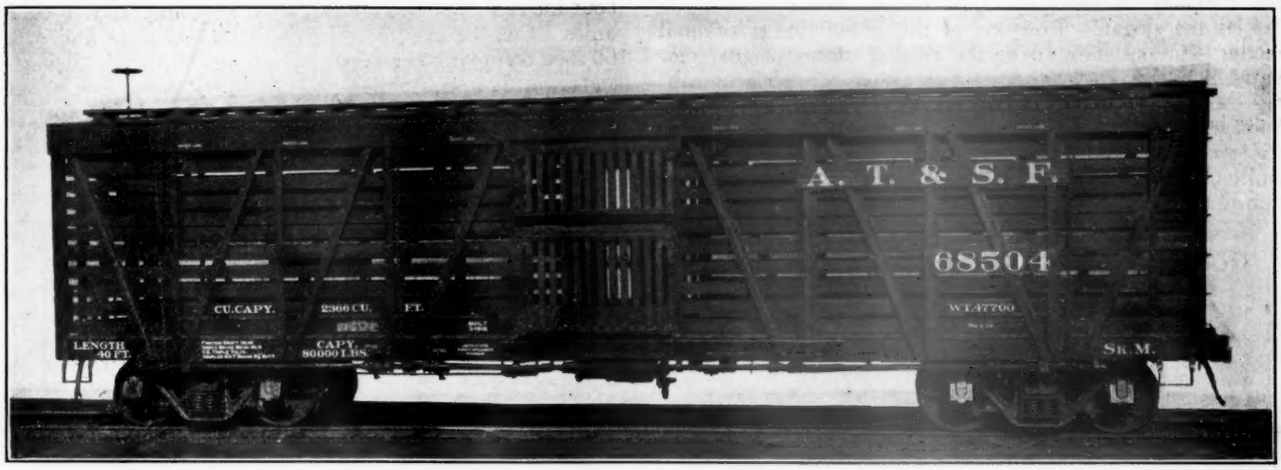
CLASS B—*Average Incomes in Various Occupations.*

Work	Total	Eng.	Sales	Mgr.	Prop.	Chief Eng.	Draft.
Manufacturing	$2,730	$2,190	$3,620	$2,830	$4,400	$2,720	...
Construction	4,365	3,000	...	3,050	5,730	...	...
Transportation	1,960	1,690	...	2,380	...	...	...
Mercantile	8,470	...	...	...	...	...	...
Public Emp.	2,070	...	...	...	...	...	...
Education	2,170	...	...	...	...	...	...
Consulting	...	...	...	...	...	...	...
General Average	$2,940						
Maximum	15,000						
Minimum	1,040						

The average salary for public servants and for teachers is about the same, $2,200 to $2,300, and is distinctly less than for corresponding positions in manufacturing.

The general average for Class B is $2,940, or $310 more than for Class A of the preceding year. This difference may naturally be attributed to the increase in prices and incomes incident to the war.

Finally, it is interesting to note that only ten out of the 277 deserted the ranks and became farmers. It may be safely stated that the great majority of engineering graduates continue in the profession for which they have prepared themselves and they succeed reasonably well in that profession.



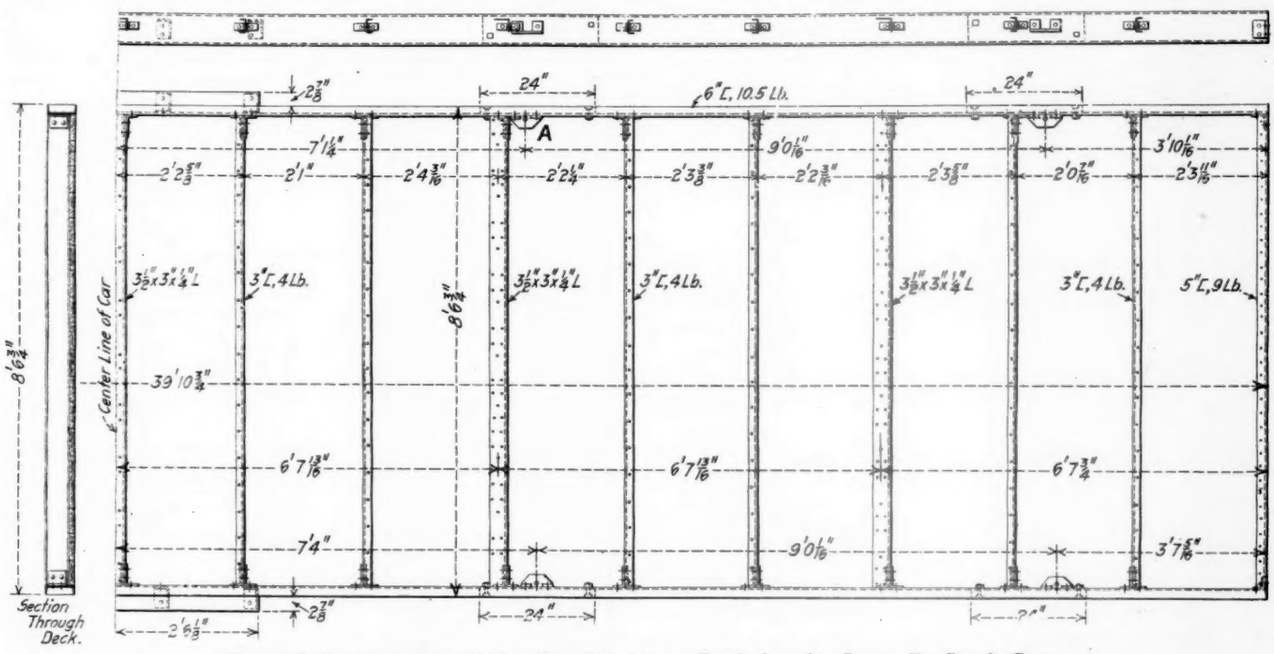
Double Deck Stock Cars for the Santa Fe

Equipment Recently Delivered Fitted with Movable Upper Deck to Adapt Cars to Various Classes of Lading

NUMEROUS designs of stock cars convertible from double to single deck have been introduced on American railways from time to time, but their use has not been very extended. The adoption of this type by the Sante Fe is, therefore, of considerable interest. The advantage of this type of car lies in its adaptability to loading sheep, hogs or cattle. It is also available for carrying brick, posts or other rough freight for which the ordinary double deck stock car cannot be used. As these latter commodities are usually shipped West and the stock East, the convertible type of double-deck stock car affords an opportunity for reducing the empty car haul.

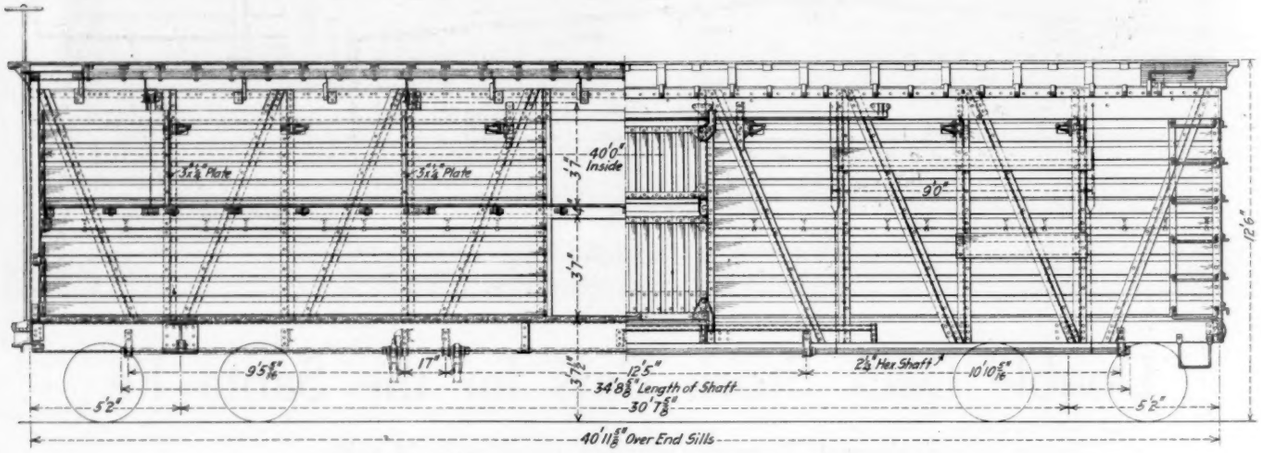
The double-deck stock cars which have been in use for more than a year on the Sante Fe are known as the company's Class Sk. M. and have a movable deck in one piece, which is raised and lowered by a simple arrangement of winding shaft and chain. The cars are of 80,000-lb. capacity, weigh about 47,000 lb., and have an inside length of 40 ft. The maximum width is 9 ft. 6½ in. at the eaves. The width inside is 8 ft. 8 in. The height from the rail to the top of the brake staff is 14 ft. 6 in. and to the top of the running board 12 ft. 6 in. The distance from the floor to the bottom of the upper deck when the upper deck is lowered is 3 ft. 7 in., and there is the same space between the upper deck and the underside of the carlines. With the deck in the raised position the distance between the floor and the underside of the deck is 6 ft. 10 in.

The framing of the car is designed in such a way that the load is carried principally by the side framing, the center sill taking care of the buffing stresses only. The cen-



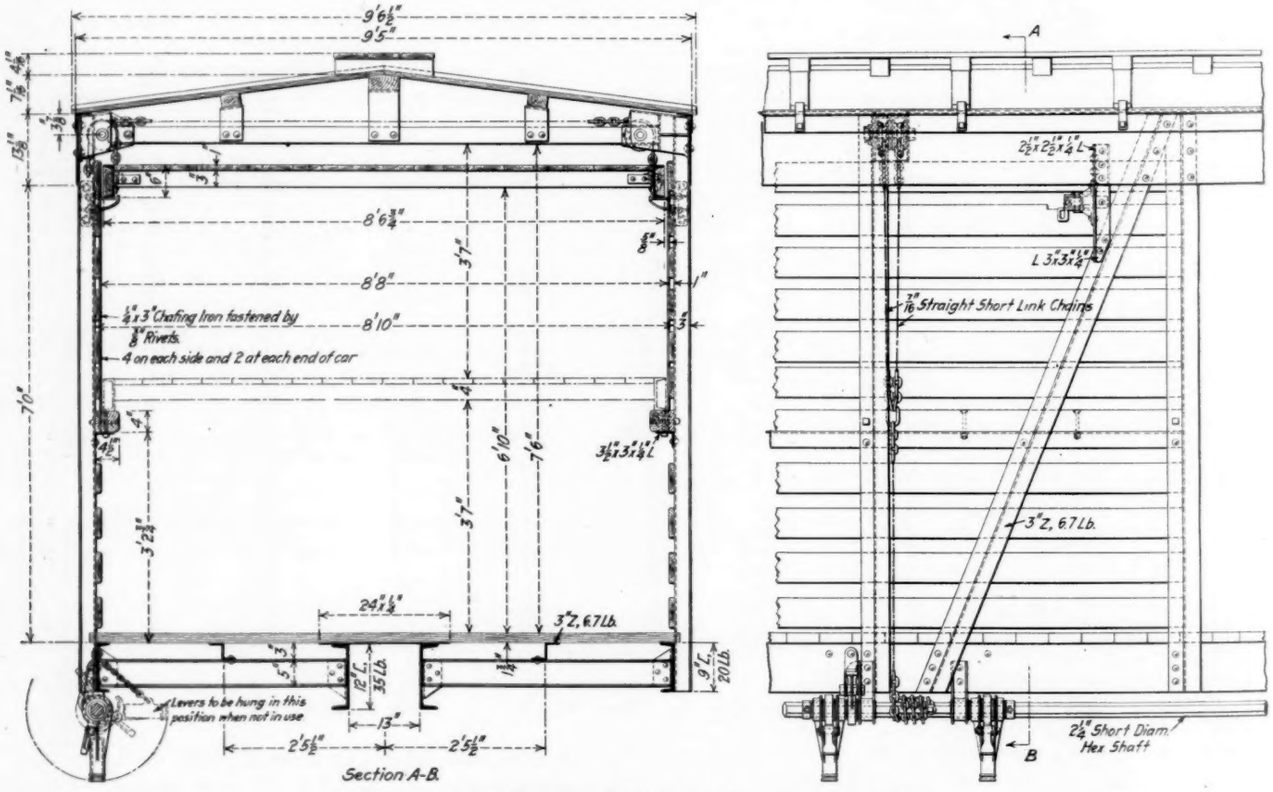
General Arrangement of the Movable Upper Deck for the Santa Fe Stock Car

ter sill is composed of two 12-in. ship channels, weighing 35 lb. per ft., spaced 13 in. from web to web, with a ¼-in. cover plate 24 in. wide extending the entire length of the sill. The body bolsters are of the box girder type, the sides being of pressed steel ¼-in. thick spaced 7 in. between the webs. The cover plates are 14 in. wide; the upper plate is ½ in. and the lower 7-16 in. thick. A cast-steel filler is placed between the center sill channels at the bolsters. The body center plate is a drop forging riveted securely to the bolster. The end sills are made of 10-in., ¼ in. thick with a 6-in. by ⅜-in. cover plate on the top and a 6-in. by 7-16-in. cover plate on the bottom. At each main crosstie a pressed steel filler is placed between the center sill channels. These crossties are located 3 ft. 6 in. from the center of the car and with the end sills form auxiliary supports for the side framing, the main load being taken by the body bolsters.



Elevation of Santa Fe Stock Car with Movable Decks

The side sills are 9-in., 20-lb. channels, extending between the end sills and forming the lower member of the side trusses. The side posts and braces are Z-bars ¼ in. thick with 3-in. webs, weighing 6.7 lb. per ft. The door posts are also Z-bars, 5-16 in. thick with 4 1-16-in. webs, weighing 10.3 lb. per ft., while the corner posts are 5-in. by 3½-in. angles, 5-16 in. thick, weighing 8.7 lb. per ft. The side

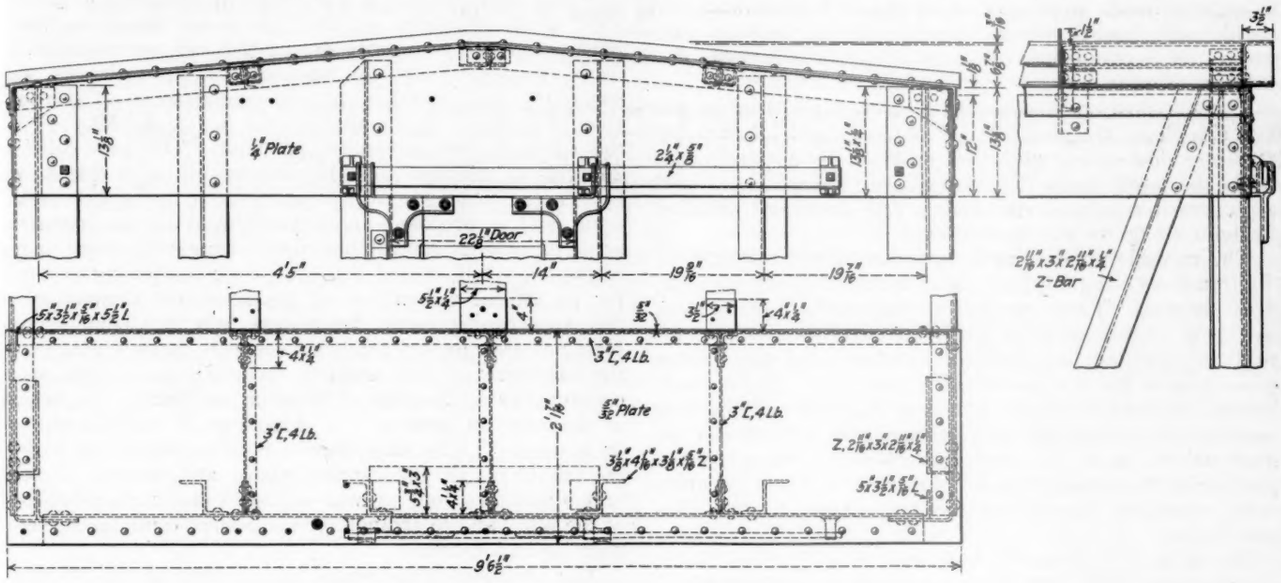


Cross Section Showing the Deck Operating Mechanism

30-lb. ship channels, with 5-16-in. end sill cover plate extending the full width of the car, being connected to the under side of the top flange of the end sill channels and to the side sills. There are two main crossties of pressed steel

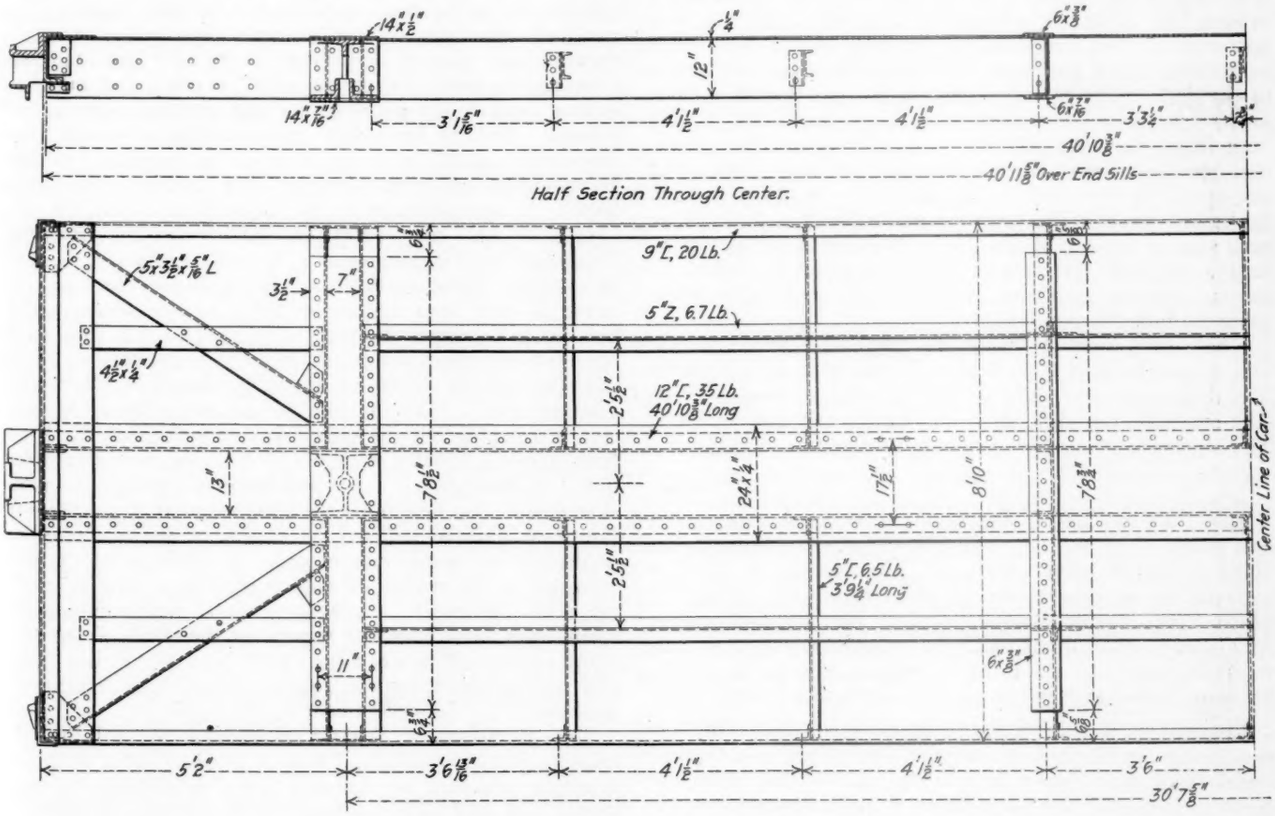
plate is formed of a 5-in. by 3½-in. by 5-16-in. angle, to which is riveted a ¼-in. plate 12 in. wide, this plate forming a connection for the posts, braces, door tracks, etc. The other four are straight and are riveted to the malleable roller housing brackets.

The flooring is 1¾-in., square-edge, long-leaf yellow pine



Detail of the Top End Connection for the Santa Fe Stock Cars

The side plates are fastened to the outside flange of the side posts. For the end posts, four Z-bars, 5-16 in. thick with 4 1-16-in. web, weighing 10.3 lb. per ft., are used. riveted to the underframe with ⅜-in. wagon box rivets. The slats are of the same material, those on the sides being 1 in. by 5½ in., while those on the ends are 1¾ in. by 5½



Steel Under Frame for Santa Fe Stock Cars

There are 14 carlines made of 3-in., 4-lb. channels. Ten of them are bent to the form of the roof and are secured to the side plates by 5-in. by 3½-in. by 5-16-in. angles. in. The slats are in one piece secured to the door, side and end posts with wagon box rivets and to the corner posts and fillers with carriage bolts. The roof boards are 13-16 in.

by 5¼ in., tongued and grooved, supported by the ridge pole and by one purline on each side of the car. The roof is of the Standard Railway Equipment Company's flexible metal type, the sheets being No. 24 Birmingham gage. Outside metal roofs were applied to these cars so that they could more readily be made available for loading with wheat. It is planned to use them in that way in case of a shortage of grain cars.

The side door opening is 5 ft. 1 in. by 6 ft. 10 in. Separate side doors are provided for the upper and lower decks, the upper doors being suspended on ⅝-in. by 2¼-in. tracks, while the lower doors run on tracks of 1½-in. heavy steel pipe, which sets below the floor. End doors are provided for both the upper and lower decks.

The movable upper deck is in one section. The sides of the frame are 6-in., 10½-lb. channels and the ends are 5-in., 9-lb. channels. There are five crossbeams of 3½-in. by 3-in. by ¼-in. angles, between which are two 3-in., 4-lb. channels, also running transversely. The floor is of 1-in. yellow pine running lengthwise and bolted and riveted to the crossbeams. A bracket extends out from the frame at the door openings to prevent the stock getting their feet between the door and the deck. The deck when lowered rests on yellow pine stringers supported by 3½-in. by 3-in. by ¼-in. angle irons extending around the car and riveted to the posts and braces.

On each side of the movable deck four 7-16-in. chains are attached. These chains run up to the side plates, where they pass over pulleys. The chains from one side are carried across the car where they run over another pulley and are joined to the opposite chain which is carried down to the operating shaft. The location of the operating chains is shown by the dotted lines on the side elevation. The operating shafts extend a short distance beyond the bolsters at each end of the car. Attached to the shaft near the door openings are two levers and a detaining pawl. The levers have ratchets and pawls for controlling the ascent or descent of the deck. The fact that there is but one operating shaft greatly facilitates the work of moving the deck. It has been found that one man can raise or lower it, either operation being performed in two minutes. On future orders but one operating lever will be provided. To hold the deck in the raised position there are six malleable iron brackets on each side of the car, which can be swung in under the channels which form the side of the frames and be locked by pawls. Patents have been granted on the devices for operating the movable upper decks.

These cars have Andrews cast steel side frame trucks, with a wheelbase of 5 ft. 4 in. and cast steel truck bolsters. The draft gear is of the friction type, Miner Class A-19-B. The couplers have 5-in. by 7-in. shanks and 9⅛-in. butts. The air brake is the Westinghouse schedule K C-1012.

SHORTAGE OF COAL IN DENMARK.—Denmark possesses no coal mines, and supplies must be imported, amounting to about 3,500,000 tons annually. The closing of English ports makes the country depend on Germany for its supply, which latter country cannot furnish the amount needed. As a consequence, night passenger service on the state railways is reduced by one-third in order to economize. With the same object in view no export of cement is permitted.

ROLLED IRON AND STEEL PRODUCTION.—In 1916, the production of all kinds of iron and steel rolled into finished forms (including blooms, billets, and axle blanks rolled for forging purposes and semi-finished products which were rolled for export in that year) was 32,380,389 gross tons as against 24,392,924 gross tons in 1915. This shows an increase of 7,987,465 tons, or 32.7 per cent, as compared with the output in 1915.—*Bulletin of the American Iron and Steel Institute.*

WASHINGTON CORRESPONDENCE

WASHINGTON, May 28, 1917.

A NEW PRIORITY BILL

A new bill creating a governmental authority to decide what kinds of traffic or what particular shipments shall have preference or priority during the war, its orders to be made effective through the machinery of the railroads' war committee, and providing for the compensation of the carriers, was favorably reported to the Senate on May 25 by the committee on interstate commerce. The new bill, S. 2356, is a substitute for the priority bill also introduced by Senator Newlands, which was referred to in last week's issue, and is proposed as an amendment to the commerce act. It includes several important changes from the terms of the other bill, one of the new provisions paving the way for an official recognition of the Executive Committee of the American Railway Association Special Committee on National Defense by requiring common carriers subject to the commerce act "to establish forthwith, and to maintain continuously in the city of Washington, during the period of the war, an agency by a committee of railroad officers or otherwise" fully empowered by such carriers to receive on behalf of all the carriers notice and service of such orders and directions as may be issued under the provisions of the bill, "and to arrange for the prompt compliance therewith by such carriers."

The President is authorized by the terms of the bill, during the continuance of the present war, "whenever in his judgment such action is necessary to the public security and defense, to direct that certain kinds of traffic or particular shipments, as may be determined by him, shall have preference or priority in transportation by any common carriers by railroad or water, under such arrangements, rules and regulations as he may prescribe." He may modify, suspend or annul such directions and issue orders direct or through such person or persons as he may designate and provision is made for the payment of office and other expenses from funds provided for the national security and defense. Failure knowingly and wilfully to comply with the orders issued or to do whatever is necessary to their prompt execution, is made subject to a fine of not more than $5,000 or imprisonment for not more than a year, or both.

One of the new provisions authorizes the President "whenever in his judgment it becomes necessary in order to expedite transportation and to do justice between carriers, to enter into agreements with two or more carriers looking to a proper division of earnings for a time to be specified and upon kinds of traffic to be prescribed." An amended section governing the compensation of the carriers provides that: "For the transportation of persons or property in carrying out the orders and directions of the President, reasonable rates shall be fixed by the Interstate Commerce Commission." The Interstate Commerce Commission would also determine the compensation to be paid for injury or damage suffered by reason of giving preference or priority in transportation under an order from the government, or by reason of disarrangement of traffic caused by such preference. In making such determination the commission shall have due regard for the terms of any land grant or contract between the carrier and the United States and provision is made for a court review of its findings on application by the government or the carrier.

The provisions of Senator Newland's original bill, exempting carriers complying with a priority order from any penalties provided by existing laws on account of such action, and prohibiting obstruction or interference with the movement of interstate commerce, are also included.

CAR SERVICE BILL PASSED

Both Houses of Congress have passed the Pomerene bill to give the Interstate Commerce Commission complete juris-

diction over car service. The bill was passed by the Senate on May 22 as a substitute for the Esch bill, which had been passed in the House, and the House on May 24 adopted the Senate bill with a technical amendment which was accepted by the Senate on the following day, stating it as an addition to Section 1 of the commerce law. The bill was passed by the Senate without debate. No opposition to the bill was offered by the carriers at the hearings before either the House or Senate committees, although ex-Senator Charles J. Faulkner, representing the roads, urged changes in the language to relieve the drastic effect of the penalty provisions. The Interstate Commerce Commission also proposed some changes. The Esch bill contained language which might at least have been construed to make effective the general penalty of $5,000 for violations of the act for the movement of a car in contravention of a car service rule. The Pomerene bill, as passed, provides that the commission may require the carriers to incorporate car service rules in their published tariffs, which would render them subject to the $5,000 fine for violation, but the specific penalty for failure to comply with an order, in respect to car service is much less. The text of the new addition to the act is as follows:

The term "car service," as used in this act, shall include the movement, distribution, exchange, interchange, and return of cars used in the transportation of property by any carrier subject to the provisions of this act.

It shall be the duty of every such carrier to establish, observe and enforce just and reasonable rules, regulations and practices with respect to car service, and every unjust and unreasonable rule, regulation and practice with respect to car service is prohibited and declared to be unlawful.

The Interstate Commerce Commission is hereby authorized by general or special orders to require all carriers subject to the provisions of the act, or any of them, to file with it from time to time their rules and regulations with respect to car service, and the commission may, in its discretion, direct that the said rules and regulations shall be incorporated in their schedules showing rates, fares and charges for transportation and be subject to any or all of the provisions of the act relating thereto.

The commission shall, after hearing, on a complaint or upon its own initiative without complaint, establish reasonable rules, regulations and practices with respect to car service, including the classification of cars, compensation to be paid for the use of any car not owned by any such common carrier and the penalties of other sanctions for non-observance of such rules.

Whenever the commission shall be of opinion that necessity exists for immediate action with respect to the supply or use of cars for transportation of property, the commission shall have, and it is hereby given, authority, either upon complaint or upon its own initiative without complaint, at once, if it so orders, without answer or other formal pleading by the interested carrier or carriers, and with or without notice, hearing or the making or filing of a report, according as the commission may determine, to suspend the operation of any or all rules, regulations, or practices then established with respect to car service for such time as may be determined by the commission, and also authority to make such just and reasonable directions with respect to car service during such time as in its opinion will best promote car service in the interest of the public and the commerce of the people.

The directions of the commission as to car service may be made through and by such agents or agencies as the commission shall designate and appoint for that purpose.

In case of failure or refusal on the part of any carrier, receiver or trustee to comply with any direction or order with respect to car service, such carrier, receiver or trustee shall be liable to a penalty of not less than $100 nor more than $500 for each such offense and $50 for each and every day of the continuance of such offense, which shall accrue to the United States and may be recovered in a civil action brought by the United States.

What effect this will have on the present practice as to car service rules apparently rests in the discretion of the commission, and will undoubtedly depend to a considerable extent on the success which attends the operation of the emergency rules, designed to meet war conditions, now being administered by the Car Service Commission of the American Railway Association. The commission might leave the administration of the rules where it now is, maintaining an informal supervision through Commissioner Clark, as ex-officio member of the Executive Committee of the Special Committee on National Defense, of which the Commission on Car Service is a sub-committee, and through its examiners who sit in the meetings of and co-operate in the work of, the Car Service Commission. If it deems it necessary it can suspend the rules and substitute its own rules or orders, which would then be reinforced by the penalties provided. If the Newlands priority bill should become a law, the orders made by the commissioner or board appointed by the President would naturally take precedence over any other rules or orders whatsoever.

Senator Cummins has introduced a bill, S. 2354, providing for government regulation of maximum prices of railway supplies. The senator said he hoped thereby to "avert the burden which would be placed upon the American people" if the railways are allowed to increase freight rates to meet their increased expenses.

GRAIN SCALES AND GRAIN WEIGHING *

By H. H. Alfrey

Scale Inspector, Chicago, Rock Island & Pacific, El Reno, Oklahoma.

Very few commodities as high priced as grain have their value determined in such various ways—from an actual net weight on a railroad track scale to an estimated weight by cubical contents of the car. Estimated weights are very unreliable, and a source of trouble to the shipper, carrier and receiver.

Wagon scales, which are used to a great extent for weighing grain shipped at country stations, are subject to many errors. To handle grain through an elevator, after it is weighed on a wagon scale, it is necessary to keep a record of the amount in each bin, and but one carload can be put into a bin at a time. At least 75 per cent of the bins in country elevators will hold more than one carload, and during the threshing season it usually becomes necessary, through a shortage of cars, to fill the houses to capacity, thus losing the definite record of the amount going into the cars. Then, no allowance is made for the loss of grain due to natural shrink, wastage in handling, leaky spouting, etc., which may vary from one-half to three per cent, and in wet seasons, may exceed this amount. The method of loading from wagons into cars has two serious disadvantages. It results in a waste of grain while loading by hand at the car, which cannot be avoided, and in the possible charging of grain to the wrong car where two or more cars are being loaded at the same time.

About 90 per cent of wagon scales are on wood foundations, and the local carpenters employed to install them do not give sufficient attention to the levels and alinement. Other common defects of wagon scales are insufficient supports, and damp pits, causing corrosion of the pivots, which detracts from the accuracy and life of the scale.

Probably the most universal method of weighing grain,

* Abstracted from a paper presented before the National Scale Men's Association at Chicago, on March 22, 1917.

especially at terminal elevators, is by the use of the hopper scale. As used in country elevators, these have a capacity ranging from 6,000 to 18,000 lb., and occasionally as much as 120,000 lb. Aside from the actual defects of the scale, discrepancies in weights are often due to other conditions. Failure to balance the scale between each draft makes it possible for grain to stick in the hopper without being discovered. Even draft-weighing sometimes leads to duplication or failure to record a draft. The practice of the elevator man depending upon his memory until he gets to the office to make a record of the weight often results in errors which cannot be checked. Weighmasters should be prevailed upon to make a permanent record of each draft at the time of weighing, so that in case of discrepancies the original record is available.

In the smaller elevators, space and the rapidity with which the grain can be handled are the two essential factors. For these reasons, and the fact that most elevator men imagine they require little attention, automatic scales are becoming more and more numerous. The register of an automatic grain scale is the most important part of its mechanism, as the accuracy of the weighing depends entirely upon this counter. There are two general classes of registers—continuous and non-continuous. The continuous register cannot be moved by hand, and will turn back to zero when it has reached its limit, while the non-continuous register can be, and usually is, turned back to zero at the beginning of the loading or the unloading of a car. Many of the automatic scales are equipped with a continuous register, and in addition to this some of them have a type-registering attachment, which is another means of checking the weight, in addition to making a record on a ticket.

An ideal record of an automatic scale should show what each dump has been used for; and where such records are kept it is often possible to locate the cause of a shortage or an overrun when the scale is used for other than shipping purposes or when two cars loaded consecutively have become confused.

The next important factor of an automatic grain scale is the compensating device. If it were not for some arrangement to compensate for the grain in suspension at the time the gate on the top closes, every draft would be heavy. Consequently, all automatic scales are equipped with a compensator to overcome this feature.

The price of automatic scales is governed by their hourly capacity; hence, the ones in use at country elevators are of small capacity, most of them being three- or four-bushel scales, with occasionally one of six or eight. This necessitates from 200 to 500 dumps per car. It is evident, then, that an error of a fraction of a pound per dump would amount to several bushels on a carload. The stream of grain in suspension varies as much as three pounds, so it is absolutely essential that the compensator be properly handled in order to obtain accurate results. Indications are that this feature is not given the attention it requires.

The balance is another important feature of an automatic scale which, like the compensator, affects every draft. While there is very little to affect the balance, still we find them as much as a pound out of balance, due to wear of the pivots and the accumulation of dirt. Under ordinary conditions a check of the balance once every two months is considered sufficient. The automatic scale is, in itself, a highly perfected machine; but, as with other machines built for delicate work, it is dependent entirely upon proper operation. Therefore, manufacturers and inspectors cannot be too specific or too imperative with their instructions to the operators.

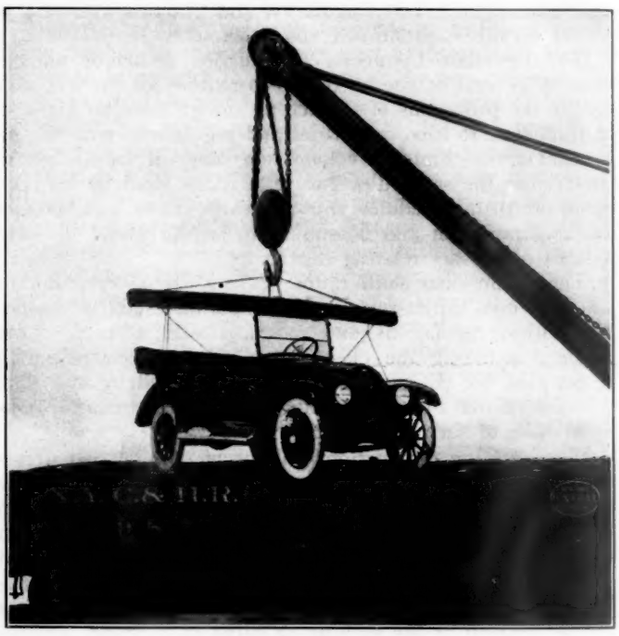
The use of the track scale is becoming very extensive with the grain trade where the volume of business is sufficient to justify such an expensive installation, and is considered one of the most accurate means of arriving at the actual net weight of a carload of grain. It is the only method recognized as an "adequate weighing facility" under the Pomerene bill of lading law, for the grain is actually in the final container and is delivered to the carrier before it is weighed, eliminating the possibility of loss in traveling from the scale to car.

Oftentimes the country shipper does not give sufficient care to his scale or to the weighing, because grain is usually sold on destination weights and grades, but the up-to-date elevator man realizes the necessity of accurate weights as a matter of protection to himself. It is only a question of time until grain weighing and weighing facilities will become standardized at the smaller stations, as it now is at board of trade and terminal points. Barring a natural shrink in transit, and a tolerance for variations between scales and weighing practices, there is no reason why loading and unloading weights should not correspond.

UNLOADING AUTOMOBILES FROM COAL CARS

The Willys-Overland Company, in shipping automobiles, uses gondola cars, provided nothing better can be had, and where it is known that a crane is available at destination for unloading. The picture shows how a crane was used for this purpose at Springfield, Mass.

As a simpler arrangement, and to make sure that there shall be no excessive strain, the Willys-Overland Company proposes that a tackle be made with ropes so adjusted as to lift vertically on each of the four wheels of the automobile. This is accomplished by using, for the main member of the tackle, a scantling suspended lengthwise of the automobile, and having the ropes, depending from the ends of this beam, stretched by horizontal transverse timber spreaders, placed about a foot above the automobile body. These spreaders should be of just the right length to hold the ropes in a vertical line above the wheels. The ropes would engage the four wheels by means of four steel hooks; and varnished surfaces are protected by cloth pads.



Tackle for Unloading an Automobile

SIAM'S MACHINERY PURCHASE.—Among the machinery imports of Siam, which amounted to $457,712 in 1916, against $538,294 in 1915, the leading items were rail locomotives to the value of $89,770.

Suggestions for the Conservation of Fuel

Additional Recommendations by the Fuel Association for Obtaining Immediate Results in Fuel Economy

THE appeal for fuel economy adopted by the convention of the International Railway Fuel Association and published in the May 18 issue of the *Railway Age Gazette*, page 1053, has been supplemented by additional suggestions addressed to various classes of railway employees. These recommendations, which are entitled "Some of the Many Things That Should Be Done to Effect Immediate Fuel Economy" are given below:

To All Railroad Operating Officers

The following suggestions are given for the purpose of calling attention to certain things that can be done immediately to prevent waste of fuel on railroads:

1. Run engines over two divisions wherever possible, in order to avoid waste of coal at ash pits and firing up. See that ash pit delays before fires are cleaned are reduced to the minimum, reorganizing ash pit forces to provide continuous fire-cleaning service.

2. Work out despatching schedules for all freight trains and have engines ordered for schedule time. If trains or engines cannot be made ready, adjust the schedule to save engines standing around under steam, wasting coal.

3. Increase the supervision and direction of the engine crews, and particularly that of new firemen.

4. Give fuel the same supervision that is usually given to the lubricating oil performance. Four or five scoops of coal are of value equal to one pint of valve oil.

5. Adopt a standard size of scoop shovel, preferably one of small size, which has been found the most economical for all ordinary conditions.

6. See that the use of fuel at power plants is given proper supervision.

7. Detail men to check car loading at mines and at scale stations.

8. Impress upon train despatchers and train crews the necessity for eliminating delays on sidetracks and at meeting points, as far as possible.

9. See that fuel statistics are comprehensive and that they are properly analyzed by division operating and mechanical department officers, so that improper conditions may be promptly corrected.

10. Insist on all transportation officers paying particular attention to the use of fuel. Impress them with the importance of the subject, and that it is more necessary to follow up fuel matters than overtime or other details of operation, from a dollar-and-cents standpoint, as well as from the standpoint of the present fuel shortage.

11. Division superintendents should hold staff meetings to consider the subject of fuel, and in addition instruct their staff officers to hold frequent meetings with enginemen, trainmen and others, gathering them together a few at a time in special meetings in order to emphasize to them the necessity of eliminating waste in the handling and use of fuel. When the group meets, mechanical department officers can review the instructions as to proper handling of engines, firing and boiler feeding.

12. Endeavor to secure the co-operation of engine crews in the economical use of any class of coal the railroads may be forced to use, due to excessive demand for high-class coal that may be required for special industrial and governmental purposes.

13. Have trainmasters, road foremen of engines, fuel supervisors, and traveling firemen follow the work of engineers and firemen as closely as possible, insisting upon engine crews practicing economy and carrying out instructions.

14. Issue instructions to engine crews to take a full tank of coal at all mine coaling stations.

15. Have coal chutes inspected to see that coal chute aprons are so arranged that coal will not be spilled on the ground and wasted.

16. Old ties, old car material, shavings, or any other available material should be used to fire up locomotives, thereby saving coal and conserving forest products.

17. Wherever practicable, store coal so as to help balance the tonnage and to reduce empty-car mileage. In storing coal, select coal of a quality that will not deteriorate rapidly, and locate storage piles where coal may be delivered to engines direct, saving a secondary handling and extra depreciation, if possible.

18. See that coal when stored is so handled as to not be broken up unnecessarily during the process of unloading.

19. Place storage coal on level ground so that it can be picked up free of non-combustible material.

20. Endeavor to have shipper put up coal trestles so that cars may be released quickly.

21. Canvass all industrial coal trestles to see if any can be secured for storage of railroad fuel at points where storage space is required.

22. When purchasing fuel for stoker fired locomotives obtain the largest size screenings the stoker can handle.

23. One large railroad has obtained excellent results by allotting for all engines the amount of coal to be used between time of firing up and leaving terminal. For yard engines similar allotments have been made for the entire period of service. It is suggested that this plan be given a trial.

To All Engine House Officers

1. Have coal shoveled ahead on tenders at terminals remote from the mines, and put no more coal on the tanks at such points than is necessary to take the train back to the terminal nearest the mines.

2. Insist that tenders be not overloaded with coal, avoiding waste on right of way and labor at coaling stations incident to picking it up.

3. Have tools and supplies placed on locomotives before the crew reports, in order to avoid delay at leaving time.

4. Maintain fire door openers, so that they will operate properly.

5. Where fire doors are not equipped with automatic openers, see that provision is made so that the door can be swung open easily and will stay latched open when firing is done in rounding curves, and so that the door can be swung shut easily after each scoop of coal.

6. Maintain brick arches properly in all locomotives.

7. Remove injectors that are oversize and replace them with those of proper size.

8. See that all coal burning locomotives have an air opening in ash pans equal to not less than 14 per cent of the grate area.

9. When locomotive fires are cleaned, see that a competent man inspects the firebox by entering it, insuring that grates are fully cleaned, without broken fingers, and when grate lever keepers are in place and locked that grates are level; see that arches are clean, in good repair, and of standard length. See also that flues are clean and free

from leaks, giving particular attention to superheater flues.

10. Do not permit locomotives to be held under steam unnecessarily. When necessary to hold engines bank fires. If held for 24 hours remove fires.

11. When engines under steam are not to be fired up within twelve hours, see that the stacks are covered to hold the temperature.

12. Do not permit fresh fuel to be placed in the firebox of locomotives unnecessarily before fires are knocked out.

13. Do not permit locomotives to leave the terminal with a fire not in proper condition.

14. Maintain boilers to their highest efficiency; wash them when necessary and have the flues of locomotives bored and blown out every trip. Give special attention to the superheater flues.

15. Do not allow locomotives to run with mud ring or front end air leaks. This leakage represents a considerable waste of fuel.

16. Make a special inspection of all locomotives to see that the exhaust nozzles are opened up to the largest area consistent with the proper steaming of the locomotive.

17. Make certain that steam pipes and superheaters are tested at frequent intervals.

18. See that cylinder and valve rings are examined at least once each month, and keep the valves squared up on all locomotives.

19. On oil-burning locomotives maintain all piping, valves and operating fittings in good condition. Keep the burner clean and in proper alignment, making periodical inspections of burners to determine if defective. Pans must be maintained in good condition and rigidly secured to avoid air leaks at sides and front behind brick work. Inspection should be made each trip to insure brick work being in good condition and all carbon and sand removed. Keep air openings free from slag and carbon accumulations.

20. The flues in an oil burning boiler require the same attention as a coal burner. Dampers should be maintained over all air openings, and must be easily operated.

To All Locomotive Engineers and Firemen

To Locomotive Engineers:

1. If your fireman does not employ the best practice, instruct him yourself and ask the road foreman or locomotive supervisor to have a friendly talk with him, setting him right.

2. Advise the fireman as to grades, shut-off points, the length of time it is probable the train will be held in sidetracks, etc., and explain to him your manner of handling the injector, so that he can fire accordingly.

3. Endeavor to work your engine at the shortest practical cut-off at all times, so as to obtain the full expansive force of the steam used.

4. Endeavor to feed the boiler uniformly, and do not allow the water level to rise so high that the effectiveness of the engine or the superheater will be destroyed.

5. Avoid waste of steam at pops. Injectors will take water as warm as your hand (100 degrees), and heating feed water to this temperature will save about four per cent and increase the steaming capacity of the locomotive on hard pulls.

To Locomotive Firemen:

1. Break all large lumps of coal, so that no coal will be wasted by firing such large lumps.

2. Keep the deck clean.

3. Do not permit coal to fall off the gangway.

4. Close the fire door after each scoopful of coal is fired.

5. Do not slug the fire.

6. Three or four scoops to a fire, even with the largest engines, give the most economical results.

7. Do not shake the grates except when absolutely necessary, and then only slightly.

8. Do not rake the fire except to fill a hole or break up a bank. When engine is drifting, fire only sufficient amount to maintain fire in proper condition.

9. Study the problem of proper firing. Talk about it with other firemen.

10. Get all the pointers you can from your engineer, and practice the principles of proper firing as your share in helping to solve the fuel problem.

11. On oil-burning engines, sand flues often and save fuel by preventing black smoke, the same as on coal burners.

Problems Well Worth Consideration

It was the sentiment of the convention that investigations conducted with a view to securing greater economy in the use of fuel should be carried on energetically at this time and the following suggestions were made with regard to such work:

The use of some portion of the vast deposits of lignite coal underlying the western territory for locomotive fuel purposes deserves special consideration, and an attempt should be made at an early date to investigate through the medium of adequate tests, preferably made in a locomotive testing plant, the possibility of extending the use of this grade of fuel in pulverized form or otherwise. The practical solution of this problem would assist in solving the fuel question on several roads serving a vast territory located remote from an existing acceptable fuel supply, reducing materially what now represents, because of the long haul, a heavy transportation effort.

The feed water heating devices now receiving serious attention from railway mechanical officers represent economical possibilities deserving of serious consideration, and tests on an adequate locomotive testing plant should be arranged to assist in the development of this fuel saving principle.

This association will continue to urge on American railroads the necessity of concerted effort toward securing, by properly conducted tests on a specially constructed test locomotive employed in a testing plant, that refinement in fuel economy which the magnitude of the problem so fully warrants, and it is recommended that an adequate appropriation for this purpose be made by the railroads, all of which would benefit by the results attained.

The co-operation of the Bureau of Mines should be requested in the matter of making a thorough scientific study of locomotive furnace conditions, the solution of the problem of slag or honeycomb formation alone warranting any effort made in this direction.

Conclusion

The above recommendations, if carried out in a thorough and conscientious manner, will result in effecting such saving and conservation of the fuel supply as will reflect to the credit of each individual contributing thereto, and will represent in the fullest sense an adequate and patriotic answer to the call of the President and the Council of National Defense.

Women in British Engineering Work.—The British Ministry of Munitions is reported as extending its plans to employ women in engineering work. Classes for training in setting-up and skilled operating of various types of machines are being held in London and appeals are made to women of good education and physique, between 20 and 35 years of age, to undertake the training. The course will last from eight to nine weeks. Maintenance grants will be paid during this period, and those who become fully proficient for service in aero-engine or other munition works may expect a minimum wage of £2 ($9.75) per week. Candidates must be prepared to accept employment in any factory to which they may be sent on the completion of their training.

REDUCTIONS IN PASSENGER SERVICE

According to tentative plans filed with the public service commissions in New England last week, the Boston & Maine proposes to eliminate nearly 20 per cent of the total passenger train mileage on its summer schedules. The Reading has announced its intention of taking off over 30 trains at Philadelphia. The Southern has taken up the matter with the commissions in its territory, and other roads are showing a similar co-operation relative to the recent recommendations of the Executive Committee of the Special Committee on National Defense of the American Railway Association.

These suggestions relative to reduction in passenger service were given in last week's issue, page 1092.

Boston & Maine

Last week the Boston & Maine presented to the Public Service Commissions of Massachusetts, New Hampshire, Vermont, Maine and New York a tentative plan calling for the elimination on June 25 of nearly 400 passenger trains from its usual summer schedules. It also proposes to reduce the number of special trains and to cut out largely the practice of operating excursion trains in the summer months.

In his letter to the commission, Temporary Receiver J. H. Hustis refers to the recommendations of the Railway War Board relative to cutting down passenger service so as to make available the maximum efficiency for moving troops, fuel, food and materials.

"While during the past eighteen months," he continues, "this railroad has handled the largest business in its history, it has been unable to accept a considerable portion of the freight business offered to it by its principal western connections.

"If New England is to be kept warm next winter, and if its mills—many engaged in manufactures directly connected with the war—are to be kept in operation, a larger coal tonnage must move all-rail, for there are not sufficient boats to move it via water.

"The railroad's own fuel supply is dangerously restricted by reason of its inability now to secure sufficient water transportation. As to its all-rail fuel supply, it is in precisely the same situation as the general public. Thus far it has refrained from confiscating commercial fuel. It desired to avoid taking such a course if possible, and this can only be done by taking immediate steps to conserve its fuel supply.

"There has been a serious drain on the shop forces of the railroad during the past year by reason of the higher wages paid elsewhere.

"New England has been called upon to provide a railroad regiment for France, and this road expects to furnish its quota of men. An appreciable number have already been called to the National Guard. Although it is expected that the needs of transportation will be remembered and that an effort will be made not to deprive the railroads of men needed in actual operation, yet many will undoubtedly enlist.

"The importance to the government and the public of having an adequate fuel supply next winter, and of moving all freight regularly and promptly will, it is believed, more than counterbalance the inconvenience resulting from the proposed modifications in the service. The proposed curtailment of train service will release equipment as well as men, will allow freer train movement and admit of a larger volume of freight being moved, and will conserve the fuel supply."

Attached to Mr. Hustis' letter is a tentative list of no less than 391 trains which it is proposed to eliminate. In addition to the many trains to be discontinued, certain trains will continue to run Saturdays only; on one branch all Sunday passenger service will be discontinued; and in two cases, that of the Ashburnham branch, and the Medford branch, all service will be discontinued. On the Georgetown branch all service is discontinued, except one train on Saturday night.

Concerning the list Mr. Hustis says:

"The proposed reduction in passenger train mileage on the Boston & Maine is less than 20 per cent. of its passenger train mileage usually operated in the summer, and covers the entire territory through which the road runs, including five states and the Dominion of Canada. The total number of trains to be withdrawn as shown in the printed announcements included duplication because the same train, in frequent instances, appears in two, three and even four places. This is due to the fact that many of the trains run over more than one division or branch line.

"In curtailing service, it is the intention to cause as little inconvenience as possible to the traveling public and, with but few exceptions, only those trains have been withdrawn that do not earn their actual out-of-pocket expenses. The public will be interested to know that practically one-third of the approximately one thousand daily passenger trains run on this system come within this category, and from this it will be understood that the number of passengers to be inconvenienced will be very small."

Southern Proposes Reduction

Permission for the discontinuance of some of the passenger trains on the Southern Railway in order to conserve the coal supply, to release men and equipment and to clear the tracks for the efficient handling of troops and supplies for the army and navy is asked of the various railroad commissions in the states traversed by the Southern's lines in a letter forwarded to the individual commissioners by E. H. Coapman, vice-president in charge of operation.

"This step is peculiarly necessary in the South," Mr. Coapman declared in making the announcement public, "on account of the extraordinary demands made upon the Southern by reason of the large concentration camps to be located in the South which will largely, if not totally, take the full carrying capacity of this company to the exclusion of other traffic and we hope that the public will co-operate with us and appreciate that what we are asking is for the good of the government in this crisis.

"It needs no argument to demonstrate that to respond to this duty of ours to the government the use of every piece of equipment, the energy and effort of every officer and employee will be needed, and the freeing of its tracks and equipment must be made.

"It is imperatively necessary that the Southern Railway, together with the other railroads of the United States, be permitted to conserve the utility of its motive power, its cars, its tracks, its number of trains, its class of traffic, and its men. To continue our present elaborate passenger service will render sterile our efforts to meet the required demands of the government in this emergency."

In asking for this reduction in its passenger service, Mr. Coapman stated that it would be the Southern's policy to safeguard as far as possible the convenience of the public.

Other Reductions in Service

To comply with the request made by the Council of National Defense that the motive power of the railroads be conserved for the service of the government the Philadelphia & Reading has cut 12 suburban trains from its service from Philadelphia to Germantown and Chestnut Hill. Most of the trains withdrawn are outside of rush hours. Ten Sunday trains and two week-day trains between Philadelphia and Frankford also have been taken off and two on the Chester branch. Two local trains from Philadelphia to Trenton will be eliminated, two from Williamsport and one on the Catawissa branch. Some curtailment of service also is made in the through trains. Two night trains to Buffalo will be consolidated into one to leave Philadelphia at 8:05 p. m. The through Washington-Buffalo service inaugurated about a year ago will be abandoned. A half dozen local trains will be added, largely to accommodate special summer travel,

such as a Saturday golfers' special for Noble and Philmont.

The "Boardwalk special" with through sleeping cars, will leave Atlantic City for New York every Sunday at 12:30 midnight and the New York express now leaving Atlantic City at 7:35 a. m. Mondays will be discontinued. Four trains to Wildwood, Stone Harbor and Cape May scheduled for May 24 have been withheld until July 1.

Announcement has been made by the Pennsylvania Railroad that as a part of the movement to conserve motive power and equipment its regular full summer service to Wildwood, Atlantic City, Cape May, Ocean City and other seashore resorts will not be put into operation until July 1, instead of May 25, as previously advertised. The Pennsylvania has also eliminated its excursion trains between New York and Washington.

The New York State Public Service Commission, Second District, fearful of too hasty elimination of passenger trains, has sent a letter to all the railroads, urging ample notice to the public before changes are made. The commission declares itself in hearty sympathy with any movement for the ultimate conservation of the resources of the country, but calls for careful deliberation. "The recommendations from Washington should be considered as such, and not as mandatory orders." The commission doubts whether unqualified compliance with the recommendations of the Washington committee is required by the emergency as it now exists, and believes that the roads ought to be able to show that any curtailments which become effective have resulted unqualifiedly in the conservation of fuel, and an increase in the capacity of the lines as a whole. The Commission desires to discuss with railroad officers any plans which they may contemplate.

Traffic officers of railways running between Chicago and St. Paul, Chicago and Omaha, Chicago and St. Louis, and Chicago and Kansas City, have held conferences recently at St. Paul, Minn., St. Louis, Mo., and Chicago to consider the feasibility of reducing train service between the points mentioned and curtailing the club car and similar service.

SIGNALING ON ILLINOIS CENTRAL MAIN LINE NEARS COMPLETION

With the exception of one section, 34 miles long, the entire main line of the Illinois Central from Chicago to New Orleans, 930 miles, is now equipped with automatic block signals, two installations totaling 342 miles in length having recently been completed. One of these is on the Louisiana division extending from Nogan, Miss., to Orleans Junction, La., approximately 173.4 miles, and the other is on the Mississippi division, from East Junction (Memphis), Tenn., to Vaughan, Miss., 169 miles. Work was authorized on the 34 miles now unprotected between Vaughan and Asylum Junction, but was postponed on account of contemplated improvements.

Louisiana Division Work

The new Louisiana division work is on double-track. The physical conditions with reference to grades and curves being excellent, little trouble was experienced in adhering to the road's standard scheme of double-track signaling. On the extreme southern end of the installation the line extends through the cypress swamp region of southern Louisiana and in this territory some interesting features were encountered. During the season of the equinox, this region is occasionally visited by semi-tropical storms, accompanied by high winds and sometimes by high water caused by the rise in level of Lake Pontchartrain, the shore of which is paralleled for several miles. Special precautions were taken to avoid possible interruption of signal operation due to wind or to the washing effect of high water during the storm season. All concrete foundations in this territory are built on piling, one pile being driven for a cable or relay box post foundation and three for each signal foundation. The piling used was creosoted pine 20 ft. long and 1 ft. in diameter.

All concrete foundations, with the exception of those built on piling, as mentioned above, were constructed in the signal department yard at McComb, Miss., and transported to the locations on flat cars, being handled both in loading and setting by a derrick car. This crane was also used in setting the larger sizes of battery containers and in erecting all signal posts.

All automatic signals are the Hall Switch & Signal Company's style K, ten-volt, with base-of-mast mechanisms, each in a single mechanism case. The power home signals at mechanical interlocking plants are of the style K, ten-volt, top-post clamp type.

At facing-switches there are two switch boxes, one attached to the closed point, the other to the open point; the track circuit is run through each switch box by separate connections to the rails. Trailing switches are equipped with

One of the New Signals on the Double-Track Section

one switch box only, connected to the normally closed point. All siding derails, which are of the derailing block type, are equipped with a standard switch box, opening the track circuit in the main track when the derail is in position for a train movement towards the main track.

All main line rail is of either 85-lb. or 90-lb. weight, and any rail of a lighter section in turnouts was removed as far back as the joints at the fouling point, and rail of the heavier sections installed. This work entailed considerable expense, but was thought advisable in order to cut down the stock of repair parts for insulated joints to be carried for maintenance. "Continuous" insulated joints were used, being installed by extra gangs, which also made all changes of rails in turnouts and did the grading around foundations.

A great deal of the wiring work was done by wiremen in the signal department shop at division headquarters. Signal case boards were sent out equipped with lightning arresters, terminals, tags, and all local wiring and flexible

connections to relays. Track cut boxes were handled in the same manner. This method cut down the field connecting a great deal, the only work necessary on the ground being the connecting up of track wires, leads from batteries, line connections and wires between signals at double locations.

Terminal boards for battery wells and battery boxes were also made up at the storehouse and sent out fully equipped with terminals, tags and wire leads of the correct length to connect to the terminals in the signal cases.

A portable saw table and a gasoline engine were included in the shop equipment to cut up short scrap pieces of trunking and capping into bootlegs, stake caps, etc. Copper-clad bond wires, 48 in. long, used as bootleg terminals were bent into standard form in the shop and shipped to the wiring gang.

Mississippi Division Work

The road between East Junction and Vaughan is single track with a number of curves, passing tracks spaced from four to eight miles apart, and one mechanical interlocking plant at the crossing of the Southern Railway at Winona, Miss.

The traffic direction system of control is used on all signals with double caution signals for opposing movements approaching passing tracks. Route locking was installed on the Illinois Central through the interlocking plant. Entrance and leaving signals for passing tracks were installed at double locations 30 ft. outside of passing track switches, except in a few cases where there are water plugs ahead of passing track switches. In cases of this kind the signals are located a sufficient distance beyond the plug to permit an engine to stop for water without setting the opposing signals at the next passing track at stop.

Intermediate signals were installed two together, one northbound and one southbound, as far as possible. However, it was necessary to make single locations of these intermediate signals in a great many places because of curves, grades and short distances between passing tracks. Block sections are from 1½ to 2 miles long, varying with the total distance between passing tracks.

The signals are one-arm, three-position, upper-quadrant, bottom post mechanism, with the exception of the home signals for the interlocking plant at Winona, which are two-arm, upper-quadrant. Here the top arms are top-post mechanism, three-position power signals, while the bottom arms are two-position 0-deg. to 45-deg. mechanical pipe connected call-on signals.

The construction work was handled by the division forces under the general supervision of the signal engineer's office. On account of the size of the installation it was possible to organize gangs to handle each class of work, making it uniform throughout. All work which could be done at a central point was done at the Grenada storehouse. A concrete mixer was set up near a yard track at Grenada and foundations were made in wooden forms sufficiently close to this track to permit loading them with a wrecking crane.

Typical signal case wiring plans for each signal location were furnished by the signal engineer's office. These plans show the location of R. S. A. terminals, lightning arresters and local wires, and the marking for the tags. Templates were used to locate terminals and arresters. Cables from the signal case to the battery well and from the signal case across the track at double locations were made up, attached to the terminals and coiled inside the case ready for shipment. Track wires and cable wires from signals to the pole line were run in the field.

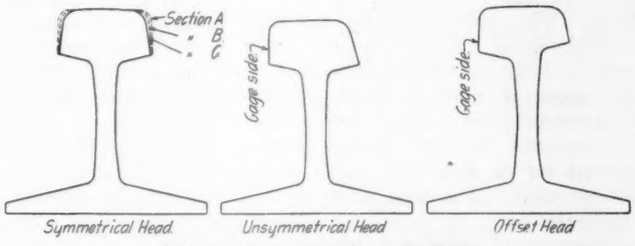
It has been found to be much more satisfactory to handle at a central point all work which it is not absolutely necessary to do in the field. Bad weather never interferes, it is much easier to supervise the case wiring, and it is possible to have all work uniform. This system effects a great saving in both time and labor over doing all work in the field.

We are indebted for the above information to R. C. Bingham, signal inspector, and C. E. Earhart, draftsman, Illinois Central, Chicago.

RECENT DEVELOPMENTS IN THE REROLLING OF RAILS

A new process for rerolling rails has recently been developed and put into use whereby the difficulties of rerolling are materially reduced and badly worn rails are rerolled more successfully than has heretofore been possible. The process is also said to improve the quality and finish over that which it has been possible to secure in the re-finished rails previously.

The need for this new process comes about through the fact that practically all of the wear on a rail is in the head and that in the endeavor to reroll it to its original symmetrical form and contour the work is not evenly distributed, thereby tending to cause distortion of the rail section and internal strains in the metal itself. The rolling on some portions of the section is heavier than on others, making it difficult to fill the rolls completely in all parts, particularly the upper corners of the head. The new process is founded on the idea that it is not only permissible but desirable that the contours of rerolled rails shall differ materially from those of new rails if the modified sections will result in a better quality of product. In particular it has been found desirable to resort to rail sections having materially narrower treads with greater slopes on the sides of the head and even to produce rail sections with an unsymmetrical head. These forms correspond to the worn rail heads from which they are rerolled and thus the work of the rolls is uniformly applied. Little change is made in the web and base. The



Three of the Sections Rolled

heights of the web and fishing angles are maintained, thus permitting the use of the same splices that were employed on the original section.

In general the process provides for a compensation for the loss of section in badly worn heads by the use of the narrower treads without making a material reduction in the width of the lower part of the head or of the upper fishing surfaces. The two sides of the head are given a sufficient pitch to connect the lower part with the narrow tread. To carry this process to a practical conclusion it is necessary to divide the worn rails into several grades depending upon the extent to which the original section has been worn or reduced. Each grade is then given a new contour consistent with the amount of material available in the old section. When rerolled, a standard A. S. C. E. 100-lb. rail is reduced to about 92 lb., preserving the original length, or to a 90-lb. rail 1 ft. longer than the original, *i. e.*, a 33-foot rail becomes 34 ft. long after rerolling. Lengthening rails in this manner is proving of interest to the railroads.

A modification of this plan utilizes the narrow treads with the base of the head substantially of the full width, but instead of sloping both sides of the head, one side is given a contour like that of the original rail and all the

adjustment is made by increasing the slope on the other side of the head. Rails rerolled to this section are laid with the sloping side of the head on the outside of the track and in consequence they can be relaid in track with rails of the original section. Rails of this type are especially adapted for use on the inside of curves where they are said to reduce the wear and friction.

A third modification of this process has been devised in which the rail head is reformed to give it a tread and sides substantially as in the original section, but the lack of metal in the head is compensated for by reducing the depth of the head on the worn side, that is, the upper fishing surface is pushed further away from the lower one. This requires the use of a deeper and, therefore, stiffer splice bar on the one side and has the effect also of increasing the section modulus of the rail.

In all sections rerolled under the new process the height of the web is preserved so that the moment of inertia and the section modulus of the rerolled section exceed those of standard sections of the same weight as the rerolled rail and the neutral axis is moved nearer the base.

The new process is said to have decided advantages from a metallurgical standpoint. The shape of the rail head insures proper work upon it in the rolls. Its reduced percentage of the total area of the section permits a more uniform cooling of the head and flange, thus minimizing the danger of internal strains and failure in service.

In the practical application of the new process the worn rails are sorted into various grades according to the contour and the amount of metal in the head. For each of these grades a set of rolls is prepared to make a finished section with the head conforming in general to the shape of the worn rail head. After grinding off slivers and chips resulting from side flow and the mashing of the metal in the head in track, the rails are heated to a moderate temperature and run through the rolls specially prepared for them. The work done by the rolls reshapes the section and elongates the rail sufficiently to saw off the battered ends and old bolt holes, leaving the rail its original length or longer if desired. The rerolled rail is then cooled, straightened and drilled in the usual way. The process is continued for the various grades, each employing its special set of rolls and being finished and shipped in a lot by itself. The first grade or rails with heads showing the least wear are in all cases rerolled to a section with a symmetrical head, but the new process is of particular advantage for rerolling the more badly worn rails. The Michigan Central is now having 100-lb. rails rerolled to 90 lb., with unsymmetrical heads; the Chicago & North Western has used the unsymmetrical head, likewise the St. Louis-San Francisco and the Chicago, Milwaukee & St. Paul is using a rerolled rail with symmetrical head.

Patents covering these processes have been granted to George Langford, general superintendent of the American McKenna Process Company, this company having mills at Joliet, Ill., Kansas City, Kan., and Warners, N. J.

COAL USED BY THE RAILROADS.—The total production of coal in the United States in 1915 was 442,624,426 net tons of bituminous coal and lignite, and 88,995,061 net tons of Pennsylvania anthracite. Of these amounts the railroads used 128,200,000 net tons of bituminous coal and anthracite, or 24 per cent of the output. The quantity of bituminous coal so used was 122,000,000 tons, or 28 per cent of the bituminous output, and the quantity of Pennsylvania anthracite used was 6,200,000 tons, or 7 per cent of the anthracite output. Of that quantity 56,500,000 tons of bituminous coal, and all of the anthracite (6,200,000 tons), or 49 per cent, was used by roads in the northeastern part of the country; 22,000,000 tons of bituminous coal was used in the southern states, and 43,500,000 tons was used in the West.

PROMOTING EFFICIENCY IN THE LOADING OF CARS

The number of cars used by the Pennsylvania Lines in forwarding l.c.l. freight during the month of March, 1917, decreased 3,722 as compared with the corresponding month in 1916, in spite of the fact that the tonnage handled increased. A vigorous campaign to secure more effective utilization of freight cars is being conducted by the Pennsylvania system and these figures show plainly the effect of the heavier average load secured on the supply of cars. The work on carload shipments has been promoted by means of circular letters to shippers, agents and those in charge of freight houses, supplemented by appeals to chambers of commerce and other organizations of like character.

Since shipments of l.c.l. freight usually make up the lightest carloads, special attention has been given to the problem of increasing the weight of l.c.l. freight carried per car. The results on the Pennsylvania Lines West of Pittsburgh for the month of March, 1917, show an increase of 12.6 per cent in the average tons per car forwarded over March, 1916. While the total tonnage of l.c.l. freight was 2.6 per cent greater in 1917 than in 1916, the total number of cars used was 9.2 per cent less.

In making this remarkable record the three grand divisions of the Pennsylvania Lines secured the heaviest average carload ever made on their respective systems. The tons per car of l.c.l. freight for the Northwest system was 10.26 in March, 1917, as compared with 9.40 in March, 1916. On the Central system the average load was 8.39 tons in 1917, and 6.99 tons in 1916, while on the Southwest system the averages for 1917 and 1916 were 9.62 tons and 8.46 tons respectively.

Comparison also was made with the figures for July, 1912. In this month, the average tons per car of l.c.l. freight were 5.42 and the corresponding figure for March, 1917, (9.79 tons) represents an increase of 79.6 per cent. The tonnage handled in March, 1917, was 31.6 per cent greater than in July, 1912, while the number of cars used was 27.1 per cent less. Had the average number of tons per car been the same in March, 1917, as it was in July, 1912, it would have required 29,500 more cars to haul the l.c.l. freight.

The average load for the various divisions shows considerable variation, the highest figure being 11.98 tons per car and the lowest 6.59 tons. On one division the increase in the average load per car amounted to 31 per cent and three divisions showed increases of more than 20 per cent. The figures for the individual stations showed the highest average load to be 24.61 tons per car. This is the average of 91 cars and is a remarkable record. One station which loaded 15 cars in a month succeeded in getting an average load of 25.56 tons in April, 1917. There are five stations which showed average loads of more than 20 tons per car and ten stations with average loads of more than 15 tons.

The campaign to save cars has not been confined to the Pennsylvania Lines West of Pittsburgh, but has also been carried on by the Pennsylvania Railroad. Circulars have been distributed among shippers over the entire system in the effort to secure better carloading. These call attention to the fact that orders are often based on the minimum carload, which, in many cases, is only one-half of the capacity of the car. The methods by which consignors and consignees can help to save cars are pointed out and an appeal is made for co-operation in the interests of both the railroads and the shippers. That these campaigns have brought good results is evidenced by the fact that the Pennsylvania Railroad has lately showed an average load per car nearly three tons greater than for the same month of the preceding year, which was equivalent to a saving of 2,018 cars per day.

General News Department

The Canadian Pacific, following about four months of negotiations, has increased the pay of conductors and other trainmen, and also yardmen, on the lines east of Fort William. It is said that the passenger trainmen will be advanced about 8 per cent; freight conductors to 50 cents an hour, with a minimum of $4 a day, and yardmen a general advance of about 25 per cent.

Charles Gates Dawes, president of the Central Trust Company, Chicago, Ill., has been recommended for the position of lieutenant-colonel in the seventh regiment of the railway contingent of nine regiments being organized by S. M. Felton, president of the Chicago Great Western. If his commission is approved, Mr. Dawes will be assigned to duty at Atlanta, Ga., where the seventh railway regiment is now being recruited.

Farmers, miners and others, in Canada, west of Edmonton, have sent urgent protests to Ottawa, complaining of the action of the government in taking up the rails of parts of the Grand Trunk Pacific to be sent to France. The protestants fear that they will be left without railroad facilities and that their business will be ruined. They call attention to the fact that there is a large mileage of track unused on the Hudson Bay Railway. These rails, they say, can be taken up without incommoding a solitary individual.

A meeting of the watch inspectors of the Rock Island system was held at Chicago on May 22 and 23. Webb C. Ball, general time inspector, presided, and N. D. Ballantyne, assistant to the chief operating officer, and C. B. Pratt, superintendent of terminals at Chicago, delivered addresses. There were 150 watch inspectors present at the meeting and a general discussion of the rules governing the conduct of time service took place. This is the first meeting of watch inspectors on the Rock Island system, but hereafter they expect to convene annually.

The New York State Public Service Commission, First district, (New York City), proposes to issue an order requiring gates at highway grade crossings to be kept lowered constantly from midnight to 5:30 a. m., except when raised to permit an automobile, a carriage or a wagon to pass; and a hearing on the matter is to be held on June 6. The purpose of the order is to provide additional safety for automobiles by making it necessary for every such vehicle to be brought to a full stop at each crossing, and also to keep the attendant alert. Complaint has been made to the commission that crossing attendants frequently fall asleep during the night.

The Nashville, Chattanooga & St. Louis is not only urging its employees to grow their own vegetables, but is buying such seeds as are needed for the planting of community gardens, in addition to tendering the use of its right-of-way for cultivation. Recently a number of the section gangs have gone in for community gardens, and the road has agreed to allow them to plant such gardens on company time and furnish the necessary seed. The section forces will pool their interests for supplying their tables this summer. These community gardens are in addition to the individual gardens already planted under the company's first offer for use of the right-of-way. In addition to these plans, the company has also turned over its 12 demonstration farms for the production of food crops.

New Haven Cancels 199 Trains

The New York, New Haven & Hartford announced last Tuesday that it proposes to eliminate from its passenger schedules 199 trains, or nearly 10 per cent of its service. The reduction of schedules is made as a result of recommendations of the Railways' War Board mentioned in last week's issue, but it will be subject to approval by the public service commissions of New York, Massachusetts, Rhode Island and Connecticut. The Massachusetts commission has set June 4 for a hearing.

Reference to reductions in passenger service by the Boston & Maine and other roads will be found elsewhere in this issue.

Southern Pacific Telegraph School

To secure trained men and develop them for responsible positions, the Southern Pacific has established an "Agency School" in San Francisco, under E. L. King, superintendent of telegraph, where an apprenticeship course in railroad station work is given and the student is paid while learning. The plan is proving very successful. Ambitious boys from the country complete the couse in from three to four months. Half the time is spent in the class room, and the balance in actual station work. Telegraphy and all the duties of a station agent are taught. Officers of the road lecture on different transportation questions. Over 60 young men who have taken the course have taken responsible positions since the school was opened.

Engineers Reach Paris

Cable despatches on May 30 announced the arrival of the United States Commission of Engineers in Paris. As noted elsewhere in this issue the party consists of Major William Barclay Parsons, Major W. J. Wilgus, W. A. Garrett and Captain A. B. Barber.

The engineers were escorted through the British lines by Colonel Henry W. Thornton, manager of the Great Eastern Railroad of England and formerly general manager of the Long Island.

Women Railroad Employees on the Baltimore & Ohio

On page 1066 of the May 18 issue of the *Railway Age Gazette* were published a photograph and short article relative to the employment of women at the Lorain (Ohio) shops of the Baltimore & Ohio, in which the following statement was made:

"At Lorain, Ohio, where the company handles its largest lake coal and ore traffic, women are given positions at the benches in the shops where they can learn the machinist trade." This statement is in error, as it is not the intention to employ women in any of the trades, but only as helpers and on certain classes of common labor.

D. & R. G. Employees to Receive Pensions

President H. U. Mudge, of the Denver & Rio Grande, announces that beginning July 1 the company will retire all employees at the age of 70 and will pay pensions to retired employees according to the usual custom on many roads. The pension will be extended to all persons continuously in the employ of the company 25 years and includes both officers and employees. The basis of the pension will be the average monthly pay for the ten years previous to retirement. Of this average pay each employee retired will receive 1 per cent for each year in the service.

Committees to Investigate Car and Locomotive Building Capacity

As briefly noted in last week's issue, committees of car and locomotive builders have been organized at the request of the Council of National Defense to investigate the capacity of car and locomotive building plants in this country and the extent of their ability to turn out additional motive power and equipment for the railroads of this country and for the Allies. The membership of these committees is as follows: Car Committee: S. M. Vauclain, vice-president of Baldwin Locomotive Works, chairman; E. F. Carry, president of Haskell & Barker Car Company; Charles S. Gawthrop, vice-president of the American Car & Foundry Company; Clive Runnels, vice-president of the Pullman Company; R. L. Gordon, vice-president of the Standard Steel Car Company, and A. S. Reeder, vice-president of the Pressed Steel Car Company. Locomotive Committee: S. M. Vauclain, chairman; Andrew Fletcher, president of the American

Locomotive Company; H. P. Ayres, vice-president of H. K. Porter Locomotive Company, and Joel Coffin, chairman of Lima Locomotive Corporation.

Tornadoes Damage Illinois Central Property

A severe tornado passed through Mattoon, Ill., on the afternoon of May 26, about 4 o'clock, completely demolishing 496 homes and partly destroying 150. The toll of deaths was 60, and 400 people were injured. The estimated property damage is placed at $900,000. The roof of the Illinois Central roundhouse at Mattoon was blown off and other property of the company was damaged to the extent of about $4,000 or $5,000. Telegraph wires were blown down and communications were cut off entirely for two hours. A train carrying doctors and nurses left Centralia, Ill., at 7 p. m. and arrived at Mattoon at 8:45. A train left Champaign at 7 o'clock with 16 doctors and a number of nurses, arriving at Mattoon at 8:30 p. m. Two special trains of militia arrived at 11 o'clock and took charge of the situation, maintaining order, clearing away debris and providing shelter for the homeless.

The storm struck Monee, Ill., at 4:55 p. m. and an Illinois Central freight train of 70 empty coal cars was struck by the tornado with the result that 24 cars and the caboose were turned over. A bridge over the tracks south of Monee was also blown down. The wreck and the debris of the bridge were cleared away by one o'clock the next morning.

Another tornado struck several stations on the Illinois Central in Kentucky and Tennessee at about 5 p. m., on May 27. Among the places which suffered great material damage as well as some loss of life were Dyersburg, Tenn.; Sharon, Clinton, Ky.; Bardwell and Hickman, on the Chicago, Memphis & Gulf, a subsidiary of the Illinois Central. The Bardwell station of the Illinois Central was destroyed and the pumping station at that point was blown down.

Railway Revenues and Expenses for March

The net operating income of the railways of the United States for March, 1917, was less than March, 1916, by $42 per mile, or 11.8 per cent, according to the Bureau of Railway Economics.

Total operating revenues, $317,087,310, exceeded those for March, 1916, by $26,861,222. Operating expenses, $229,020,175, were greater by $34,526,031. Net operating revenue, $88,067,135, fell off $7,664,809. Taxes, $14,432,164, increased by $1,903,970. Net operating income was $73,574,537, which is a decrease of $9,571,688.

If spread over the mileage represented, operating revenues averaged $1,373 per mile, an increase of 9.0 per cent; operating expenses per mile, $992, were greater by 17.4 per cent; net operating revenue per mile, $381, shows a decrease of 8.3 per cent; while net operating income per mile, $319, shows a decrease of 11.8 per cent. Taxes per mile rose 14.9 per cent.

This summary covers 230,973 miles of operated line, or about 90 per cent of the steam railway mileage of the United States.

For the Eastern railways, operating revenues per mile were greater than those for March, 1916, by 9.4 per cent; operating expenses rose 20.4 per cent; net operating revenue decreased 16.4 per cent; taxes increased 11.4 per cent. Operating income per mile decreased 20.5 per cent.

For the railways of the Southern district, operating revenues per mile exceeded those for March, 1916, by 9.1 per cent; operating expenses rose 12.4 per cent; net operating revenue increased 3.2 per cent; taxes increased 27.5 per cent. Operating income per mile decreased 0.1 per cent.

For the Western railways, operating revenues per mile exceeded those for March, 1916, by 8.6 per cent; operating expenses rose 15.9 per cent; net operating revenue decreased 4.7 per cent; taxes increased 14.1 per cent. Operating income per mile decreased 7.7 per cent.

The three months of the current calendar year, compared with the corresponding period of the preceding year, show changes per mile of line as follows: operating revenues increased 8.1 per cent, operating expenses increased 15.5 per cent, net operating revenue decreased 8.3 per cent, taxes increased 12.1 per cent, while operating income decreased 11.9 per cent.

REVENUES AND EXPENSES OF STEAM ROADS—MARCH, 1917

Compiled from monthly returns of the railways to the Interstate Commerce Commission and covering roads of Class I, i. e., roads with annual operating revenues above $1,000,000.

Account	United States				Eastern District				Southern District				Western District			
	Amount, 1917	Per mile of line		Increase over 1916 Per cent	Amount, 1917	Per mile of line		Increase over 1916 Per cent	Amount, 1917	Per mile of line		Increase over 1916 Per cent	Amount, 1917	Per mile of line		Increase over 1916 Per cent
		1917	1916			1917	1916			1917	1916			1917	1916	
Total operating revenues	$317,087,310	$1,373	$1,260	9.0	$143,755,817	$2,426	$2,219	9.4	$48,950,109	$1,145	$1,050	9.1	$124,381,384	$964	$888	8.6
Freight	227,413,582	985	921	6.9	103,325,682	1,744	1,622	7.5	35,784,516	837	789	6.2	88,303,384	685	642	6.5
Passenger	58,936,243	255	220	15.8	25,160,284	425	370	14.8	9,248,265	216	181	19.3	24,527,694	190	165	15.6
Mail	5,123,064	22	22	d 0.7	1,982,955	33	34	d 0.7	790,090	18	15	23.3	2,350,019	18	20	d 6.8
Express	8,508,168	37	31	20.0	3,982,331	67	57	18.4	1,280,743	30	25	17.3	3,245,094	25	20	23.4
All other	17,106,253	74	66	13.8	9,304,565	157	136	15.1	1,846,495	44	40	10.3	5,955,193	46	41	13.3
Total operating expenses	229,020,175	992	844	17.4	110,750,409	1,869	1,553	20.4	32,585,554	762	679	12.4	85,684,212	664	573	15.9
Maintenance of way and structures	35,325,616	153	142	7.9	14,782,506	250	233	7.0	5,572,251	130	119	9.5	14,970,859	116	107	8.3
Maintenance of equipment	55,273,255	240	216	10.8	27,190,450	459	405	13.3	8,381,517	196	190	3.2	19,701,288	153	138	11.0
Traffic	5,351,576	23	22	6.6	2,028,388	34	32	8.3	1,034,979	24	22	8.7	2,288,209	18	17	4.2
Transportation	123,180,872	533	428	24.6	62,148,853	1,049	817	28.4	16,189,336	379	318	19.1	44,842,683	348	285	21.9
General	7,758,004	34	29	15.2	3,454,154	58	50	17.3	1,170,616	27	26	6.7	3,133,234	24	21	16.6
All other	2,130,852	9	7	22.2	1,146,058	19	16	24.0	236,855	6	4	67.8	747,939	5	5	10.5
Net operating revenue	88,067,135	381	416	d 8.3	33,005,408	557	666	d 16.4	16,364,555	383	371	3.2	38,697,172	300	315	d 4.7
Taxes	14,432,164	62	55	14.9	5,771,587	97	87	11.4	2,333,020	55	43	27.5	6,327,557	49	43	14.1
Uncollectible revenues	60,434	*	*	....	13,867	*	*	....	16,561	*	*	....	30,006	*	*	....
Operating income	73,574,537	319	361	d 11.8	27,219,954	460	578	d 20.5	14,014,974	328	328	d 0.1	32,339,609	251	272	d 7.7
Operating ratio—per cent—																
1917		72.2				77.0				66.6				68.9		
1916		67.0				70.0				64.6				64.5		
Average mileage represented—																
1917		230,973				59,241				42,737				128,995		
1916		230,348				59,221				42,534				128,593		

d Decrease.
* Less than one dollar.

Operating income per mile decreased 32.6 per cent in the East, increased 5.3 per cent in the South, and increased 4.0 per cent in the West.

March net operating income per mile was 11.8 per cent less in 1917 than in 1916, 30.5 per cent greater than in 1915, 32.7 per cent greater than in 1914, and 35.7 per cent greater than in 1913.

Advances in the Cost of Railroad Materials in Two Years

The Southern Pacific recently compiled statistics showing comparative prices of railway materials in May, 1915, and May, 1917. The figures show advances ranging from 50 per cent to 500 per cent.

Prices of all types of locomotives have increased approximately 75 per cent, the price of the Pacific type, for instance, advancing from $27,000 to $47,290. Passenger cars have increased 50 per cent in cost, the price of a steel chair car in 1915 being $12,500 as compared with $18,750 in 1917. Various types of freight cars have increased from 60 to 85 per cent in price. Steel underframe box cars which cost $1,255 in 1915 now command a price of $2,010. Even greater advances have taken place in the prices of miscellaneous materials. White lead, which cost $45 a ton two years ago, now sells at $203.80 per ton. Spikes now sell at $69 a ton as compared with $30 two years ago. Bolts now sell at $80 a ton which sold at $36.40 in 1915. The price of a ton of angle bars in May, 1917, was $53 and in 1915, $29; nails, in 1917, $59, and in 1915, $29; cast iron pipe in 1917, $45, and in 1915, $16.50; switch points in 1917, $70, and in 1915, $40; manila rope, $38 now as compared with $19.50 in 1915. Frogs now sell at $84.50 each as compared with $44.50 in 1915, and insulated joints which commanded a price of $3.85 each two years ago now sell for $7.35.

Appeals for Freight Car Economy

F. M. Lucore, assistant general manager of the Southern Pacific Lines in Texas and Louisiana, has issued in booklet form an appeal for the conservation of the freight car supply. One section of the booklet is addressed to shippers of carload freight. Several pages are addressed to the railroad commissions of Texas and Louisiana, containing car surplus and shortage figures for 10 years and asking their assistance in the general campaign. An appeal is also made to the bankers of these states to encourage the full loading of cars, while other pages are addressed to buyers of cement, lime and plaster, cotton, hay, and other commodities.

Appeals have been issued by R. E. Clarke, superintendent of car service of the Texas & Pacific, and O. C. Smith, superintendent of transportation of the Missouri, Kansas & Texas.

Mr. Clarke calls upon shippers to place orders only for such cars as can be immediately loaded; to give every car a load that will equal capacity, plus 10 per cent; to load cars promptly and without reference to free time allowance, and to avoid reconsignments, which mean only congestion, delay and extra handling.

Mr. Smith's letter exhorts shippers to remember that the railroads are the arteries of the nation's life, which is being threatened by the autocracy of hostile European powers. One of the most gigantic problems ever undertaken must be accomplished by our railroads in the transportation of foodstuffs and materials to feed the defending nations and supply munitions of war. "The usual and frequent delays and the great lack of full capacity loading of all freight-car equipment on our railroads, if continued during this greatest of wars, would be a national crime and a blot on the patriotism and resourcefulness of American railroads and business men. . . . Disregard any and all privileges to which you are accorded and entitled under the tariffs and rules of railroads."

Railway Signal Association

The regular June meeting of this association will be held at the Hotel McAlpin, Broadway and 34th street, New York City, June 12 and 13.

There will be reports from Committees 1, 2, 3, 4, 6, 7, 8, and the special committee on harmonizing specifications.

Committee No. 1 will reaffirm its previous recommendation on the desirability of having an overlap in automatic signaling. Committee No. 2 will report on field construction of pipe lines at mechanical interlockings, and on locking switches mechanically at interlocking plants.

Committee No. 3 will report on requisites for first range voltage electric interlocking. Committee No. 4 will present a drawing containing a plan for connecting wires to rails. Committee No. 6, on standard designs, will present several sheets of drawings showing details and assembling of signaling apparatus.

Committee No. 7, dealing with direct current relays, will present a report recommending a standard of safety for track circuit operation. Committee No. 8, on electric railways, will present specifications for impedance bonds; electric alternators; reactors; resistors and other features.

The special committee on harmonizing specifications will present revised specifications for a variety of signal material, the whole filling about twenty pages of the report. The report of this committee will be taken up at the first session, Tuesday, and the other reports to be taken up on that day will be those of committees 7, 1, 2, 3, and 4; and on Wednesday committees 6, 8, and 10 will be heard.

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings and places of meetings:

AIR BRAKE ASSOCIATION.—F. M. Nellis, Room 3014, 165 Broadway, New York City.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—F. A. Pontious, 455 Grand Central Station, Chicago. Next meeting, July 18, 1917, Asheville, N. C.

AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—H. C. Boardman, D. L. & W., Hoboken, N. J. Next convention, October, 1917, San Francisco, Cal.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, Illinois Central, Chicago, Ill. Next meeting, June, 1917, Denver.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Next meeting, October 16-17, St. Louis.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, Room 101, Union Station, St. Louis, Mo. Annual meeting, August 8-10, 1917, Minneapolis, Minn.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—E. B. Burritt, 8 W. 40th St., New York. Convention for 1917 abandoned.

AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOCIATION.—Fred C. J. Dell, 165 Broadway, New York.

AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPEFITTERS' ASSOCIATION.—W. E. Jones, C. & N. W., 3814 Fulton St., Chicago. Convention for 1917 postponed.

AMERICAN RAILWAY ASSOCIATION.—J. E. Fairbanks, general secretary, 75 Church St., New York. Next meeting to have been held May 16, 1917, indefinitely postponed.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Next convention, October 16-18, 1917, St. Paul, Minn.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, 1112 Karpen Bldg., Chicago. June meeting postponed for one year.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—Owen D. Kinsey, Illinois Central, Chicago. Next convention, August 30-September 1, Hotel Sherman, Chicago.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa. Annual meeting, June 26-29, Hotel Traymore, Atlantic City, N. J.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, Supt. Timber Preservation, B. & O., Mt. Royal Sta., Baltimore, Md. Next convention, January, 1918, Chicago.

ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—E. R. Woodson, Rooms 1116-8 Woodward Bldg, Washington, D. C.

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS.—George W. Lyndon, 1214 McCormick Bldg., Chicago. Semi-annual meeting with Master Car Builders' Association.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—Willis H. Failing, Terminal Station, Central of New Jersey, Jersey City, N. J.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Semi-annual and annual convention postponed indefinitely.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—W. L. Connelly, Superintendent of Telegraph, Indiana Harbor Belt, Gibson, Ind. Next annual meeting, September 11-13, 1917, Washington, D. C.

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York. Meeting to have been held June 26-27, postponed indefinitely.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—Tom Lehon, The Lehon Company, Chicago. Meetings with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual dinner, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—W. R. McMunn, New York Central, Albany, N. Y. Next convention, September, 1917, St. Louis.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 568 Union Arcade Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh, Pa.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Traffic Manager, R. F. & P., Richmond, Va. Annual convention, June 19, 1917, Chicago, Ill.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, C. H. & D., Lima, Ohio. Next annual meeting, August 21-23, 1917, Chicago.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—J. G. Crawford, C. B. & Q. R. R., 702 E. 51st St., Chicago. Next convention, May, 1918, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1126 W. Broadway, Winona, Minn. Annual meeting, September 4-7, 1917, Hotel Sherman, Chicago.

MAINTENANCE OF WAY AND MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—F. W. Hager, Fort Worth & Denver City, Fort Worth, Tex. Next convention, October 16-18, 1917, Cleveland, Ohio.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Next annual meeting, September 11, 1917, Chicago.

MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, 1112 Karpen Bldg., Chicago. June meeting postponed for one year.

NATIONAL ASSOCIATION OF RAILWAY COMMISSIONERS.—Wm. H. Connolly, 1319 Columbia Road, Washington, D. C. Next annual convention, October 16, 1917, Washington, D. C.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, 349 Peoples Gas Bldg., Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meeting, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—Geo. A. J. Hochgrebe, 623 Brisbane Bldg., Buffalo, N. Y. Meetings 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.

PACIFIC RAILWAY CLUB.—W. S. Wollner, Assistant to Chief Engineer, Northwestern Pacific R. R., San Francisco, Cal.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—F. C. Stewart, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—Claude Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Saturday in month, Kansas City.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 30 Church St., New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Pittsburgh Commercial Club Rooms, Colonial-Annex Hotel, Pittsburgh.

RAILWAY DEVELOPMENT ASSOCIATION.—D. C. Welty, Commissioner of Agriculture, St. L., Iron Mt. & So., 1047 Railway Exchange Bldg., St. Louis. Next annual convention, May, 1918, Houston, Tex.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, 1063 Monadnock Block, Chicago. Meetings with Association of Railway Electrical Engineers.

RAILWAY FIRE PROTECTION ASSOCIATION.—C. B. Edwards, Office of the President's Assistant, Seaboard Air Line, Norfolk, Va. Next meeting, October 2-4, 1917, St. Louis, Mo.

RAILWAY REAL ESTATE ASSOCIATION.—R. H. Morrison, Assistant Engineer, C. & O., Richmond, Va. Next convention, October, 1917, Duluth, Minn.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Myers Bldg., Bethlehem, Pa. Next meeting, June, 1917, Hotel McAlpin, N. Y. Next annual convention, September, 1917, Atlantic City, N. J.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, N. Y. C. R. R., Box C, Collinwood, Ohio.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 2136 Oliver Bldg., Pittsburgh, Pa. Meetings with Master Car Builders' and Master Mechanics' Association.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 50 Church St., New York. Meetings with Association of Railway Telegraph Superintendents.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—P. J. McAndrews, C. & N. W., Sterling, Ill. Next annual convention, September 18-21, 1917, Hotel Auditorium, Chicago.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SALT LAKE TRANSPORTATION CLUB.—R. E. Rowland, David Keith Bldg., Salt Lake City, Utah. Regular meetings, 1st Saturday of each month, Salt Lake City.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, 3868 Park Ave., New York. Meetings with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—L. W. Cox, N. & W., Philadelphia, Pa.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. R. R., Atlanta, Ga.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 a. m., Piedmont Hotel, Atlanta.

TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y. Meetings with Roadmasters' and Maintenance of Way Association.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7122 Stewart Ave., Chicago. Next meeting, June 19, 1917, Fresno, Cal.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. R. R., Cleveland, Ohio. Next convention, September, 1917, Chicago.

WESTERN ASSOCIATION OF SHORT LINE RAILROADS.—Clarence M. Oddie, Mills Bldg., San Francisco.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Monday in month, except June, July and August, Hotel Sherman, Chicago.

Traffic News

The traffic officers of the Central of Georgia expect that about 3,267 cars of peaches will be shipped this year from orchards in the territory adjacent to the company's lines.

The New Mexico State Corporation Commission has accepted from the railroads revised freight tariffs providing for a general increase of 15 per cent in rates and proposes to give hearings both to the railroads and to shippers before approving the new rates.

The Railroad Commission of Louisiana will hold a hearing on June 4 on the application of the railroads of the state for a 15 per cent advance in intrastate freight rates. A similar hearing will take place before the State Public Utilities Commission of Illinois on June 5.

The executive committee of the American Association of Traveling Passenger Agents, at a meeting in New Orleans on May 9, voted not to hold the forty-fifth annual convention which was to have been held at New Orleans, October 23. It was decided that if the international situation should change, the committee might feel justified in appointing the meeting to be held on the original dates or on other dates that may be selected.

The Attorney General of Illinois on Monday, May 28, applied for an injunction in the Superior Court at Chicago to prevent the railroads from putting into effect the proposed increase of passenger fares to 2.4 cents a mile. The intention was to put the new fares into effect on May 31. In a hearing on May 29 the application of the railroads to have the case transferred to the Federal Court, on grounds of jurisdiction, was denied; and after further argument, the court, Judge Charles M. Foell, on May 30, granted a temporary injunction restraining the railroads from putting the increased fares into effect. The railroads are given 20 days to answer the Attorney General's petition for a permanent injunction.

The "De Luxe" train of the Atchison, Topeka & Santa Fe, running between Chicago and California, made a perfect "on-time" record in the season just ended. Westbound service between Chicago and California began January 2, and closed March 20, and eastbound service extended from February 1 to May 1. On every trip in both directions the train arrived at destination exactly on time. The train left Los Angeles and Chicago every Tuesday, and traversed over 2,251 miles of line, crossing seven states and three mountain ranges, and was subjected to unusually severe and erratic winter weather conditions. The record was made in spite of an unprecedented tourist travel westward last winter, necessitating extra sections of limited trains on many days, and a heavy volume of freight traffic between the East and the West.

Rate Advance Hearing

The rate advance hearing in Washington is reported on page 1135 of this issue, except for the proceedings on Tuesday. Representatives of the southern lumber interests testified before the Interstate Commerce Commission on that day in opposition to an advance in freight rates. J. H. Townsend, traffic manager of the Southern Hardwood Traffic Association, filed exhibits showing that the revenue per car on lumber shipments is greater than the average on all freight and said that because it takes three cars of logs to make one car of finished lumber the proposed increase will bear especially hard on lumber shippers. He also said that the lumber rates had already had several advances and that the railroads handling the hardwood traffic are showing greater net earnings than ever before in their history, including the first three months of 1917. James E. Stark, president of the association, gave similar testimony, saying that the lumber interests were not in a prosperous condition and that, although prices have advanced somewhat of late, they are now about the level of 1913. He said the operating

expenses of the sawmills had been greatly increased and that the most successful are not making more than 5 per cent on the investment. W. B. Burt of Charleston, Miss., said the advance would restrict the available markets and would cause his company to lose money on a contract for ties for the French government. He said that because of the car shortage he had been obliged to ship in flat cars which causes a cost of $6 or $7 per car for stakes, etc.

E. C. Hoskins and other representatives of the Florida fruit and vegetable shippers opposed an advance on the ground that the business could not stand it. William Sibley, secretary and treasurer of the Southern Paving Brick Manufacturers' Association, said he thought the railroads need some relief and would be glad to pay his share, but that a 15 per cent horizontal advance would put the paving brick interests out of business because their competitors, making asphalt and cement and concrete pavements, only have to pay freight rates on a small percentage of their material, using sand which can be procured locally. C. B. Stafford, manager of the traffic department of the Louisville Board of Trade, said his organization was in favor of such advance in rates as would be necessary to pay for the Adamson law, but thought that existing differentials and relationships should be preserved and that the commission should investigate the matter by a full hearing. Representatives of the northwestern apple growers testified on Wednesday, stating that the business was in a precarious condition and that a percentage advance would prejudice them in competition with the product that is shipped for shorter distances. O. O. Calderhead, statistician of the Washington Public Service Commission, and J. A. Little, rate expert of the North Dakota Commission, also opposed the advance.

Some amusement was afforded at the session on Wednesday when a shipper who was put on the stand by H. C. Lust, a traffic attorney of Chicago, was asked by F. H. Wood, commerce counsel of the Southern Pacific, if he had received copies of form letters, which were read into the record, which Mr. Lust had sent out calling upon shippers to protest against an increase in rates and offering to represent them at $60 a head. The mailing list to which the letters were sent happened to include the name of a firm of railroad lawyers.

Eighty-five per cent of the letters and telegrams received by the Interstate Commerce Commission from eastern manufacturers, merchants, boards of trade, business associations, banks and individuals urge an immediate advance in freight rates for the eastern carriers to enable them to meet the high cost of operation. A general advance of 15 per cent is favored in 75 per cent of the communications.

Out of 673 appeals to the commission, 571 are in favor of granting the petition of the carriers, and of these the full 15 per cent is urged in 500 communications from all the important traffic centers in the eastern states.

Only 46, or 7 per cent, of all the correspondents are against granting any relief to the carriers. Thirty more ask for a full investigation of the case, and 26 of those not indorsing the plea of the railroads state that they will not oppose a rate advance if it is made at a later date.

The 500 appeals for the full 15 per cent advance to take effect July 1 include 300 business concerns, ranging all the way from large national industrial corporations to small retail merchants; 121 associations of shippers and business men; and 79 banks, investors, and individuals. Only 8 business associations have written the commission in opposition to any advance in rates.

Among the business organizations favorable to the proposed rate advance are: National Industrial Traffic League, Investment Bankers' Association of America, Millers' National Federation, Illinois Manufacturers' Association, New York Pulp & Paper Traffic Association, New York State Feed Manufacturers' Association, New York Chamber of Commerce, New York Merchants' Association, New York Produce Exchange, Philadelphia Chamber of Commerce, Philadelphia Board of Trade, Philadelphia Bourse, Philadelphia Commercial Exchange, Baltimore Traffic Club, Baltimore Merchants' and Manufacturers' Association, Pittsburgh Chamber of Commerce, Pittsburgh Board of Trade, Wilmington Chamber of Commerce, and the business men's organizations of nearly a hundred other cities in the eastern states.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

Rail and Lake Rates

Oil City Rail and Lake Rates. Opinion by Commissioner Clark:

A proposed change in the class-rate basis whereby Oil City, Franklin, McClintock, River Ridge and South Oil City, Pa., are placed on the Baltimore, Md., basis in lieu of the Rochester, N. Y., basis on traffic destined to Lake Michigan and Lake Superior ports and to Minneapolis, Minn., and points taking the same rates, in connection with the Great Lakes Transit Corporation, is found not justified. (44, I. C. C., 439.)

Western Rail and Lake Rates. Opinion by the commission:

Proposed increased rail-and-lake class and commodity rates from water points served by the Maryland, Delaware & Virginia and Baltimore, Chesapeake & Atlantic, and from rail points on the lines of those carriers and on the Long Island, to western lake and other western destinations, are found not justified. (44, I. C. C., 424.)

Chamber of Commerce of La Crosse, Wis. v. Great Lakes Transit Corporation et al. Opinion by Commissioner Daniels:

Rail-and-lake rates on interstate traffic from trunk line territory and from Buffalo, N. Y., Erie, Pa., and Detroit, Mich., to La Crosse, Wis., and Winona and Red Wing, Minn., by way of the Great Lakes Transit Corporation, are found to be prejudicial. The defendants are required to establish joint through rail-lake-and-rail and lake-and-rail rates from and to the points involved that shall not exceed the rail-lake-and-rail and lake-and-rail rates on like traffic from the same points to St. Paul and Minneapolis, Minn. (44, I. C. C., 506.)

COURT NEWS

Benefit Assessments

The Illinois Supreme Court holds that a city street paving improvement does not benefit the right of way of a railroad whose tracks are elevated merely because teamsters might use the paved street in going to and from its yards, since such benefit would only be such as is received by the general public.—Chicago v. Chicago & N. W. (Ill.) 115 N. E. 836. Decided April 19, 1917.

Rightful Ejection on Loss of Ticket

A passenger misplaced his ticket and the conductor gave him a reasonable time to find it. Not having done so or made any offer to pay the fare, the conductor stopped the train between stations and requested the passenger to get off. This the passenger did and as the train was moving off he found the ticket. He told the conductor so, but the latter did not invite him to board the train again. He walked 3½ miles to his destination, but suffered no injury. In an action for damages the Georgia Court of Appeals held that the passenger was legally expelled, and that he could not demand the right to re-enter the train. There was nothing to show that the place of his ejection was an improper place. Judgment of non-suit was affirmed.—Foskey v. Wrightsville & Tennille (Ga.), 92 S. E., 34. Decided April 4, 1917.

Care at Crossing—Warning to Trespassers

In an action for personal injuries it appeared from the evidence that the plaintiff was traveling across the yards and tracks of the defendant railroad along a well-defined pathway which had been constantly used by the public in large numbers for eight or ten years. Two members of a train crew engaged in switching in the yards saw him. Four cars were kicked on to a track across which the plaintiff was about to pass, without any warning or signal of their approach. The Oklahoma Supreme Court, following prior decisions of that court, holds that the com-

pany and its employees were bound to use reasonable care to avoid injury to the plaintiff, his presence being known. The fact that the company had placed signs along its right of way warning the public against trespassing thereon did not absolve it from the duty imposed by the custom of the public which had ripened into a license, where it appeared that this custom had continued unabated after the placing of the signs.—Rock Island v. Austin (Okla.) 163 Pac. 517. Decided October 10, 1916. Rehearing denied March 13, 1917.

Special Train Rates

A tariff provided that the minimum charge for a special train should be $75, with certain exceptions, among which was one for special trains between St. Louis and Memphis, in which case the minimum charge should be $50. An agent of the Iron Mountain road at Harrisburg, Ark., presented a passenger a bill for $50 for a special train from Harrisburg to Wynne, which the passenger paid. The railroad's receiver subsequently sued him for $25, claiming that $75 was the minimum charge for the train. The Arkansas Supreme Court sustained the claim, although Harrisburg and Wynne are on the line between St. Louis and Memphis. The court quoted from the plaintiff's counsel's brief as follows: "If a railway company is called upon to furnish a special train out of some small station along its line, it must, in order to comply, run empty cars from some terminal or division point to the station making the call, and these cars will earn no revenue until after they have reached the point where they are to be put into service. On the other hand, such service out of terminals and divisions points, or out of points in the vicinity of such, begins to earn revenue as soon as the cars are set in motion.—Bush v. Cole (Ark.) 194 S. W. 24. Decided April 2, 1917.

Construction of Contract for Track Scale

In an action against a railroad company for conversion of a track scale it appeared that the plaintiff entered into an agreement with the company whereby he was licensed to place a track scale in the company's track. The scale was to be constructed at the sole expense of the plaintiff under the supervision of the roadmaster; the company was to be allowed to use the scale free of charge, and the plaintiff was to indemnify the company for any damage it might suffer; and the plaintiff was to remove the scale within 30 days after being notified in writing by the company to do so, and if he should fail to comply with this request, the company could remove the scale. The company removed the scale without notice to the plaintiff. The Mississippi Supreme Court held that there was nothing in the contract requiring 30 days' notice of its termination. By its failure to give the notice the expense and risk of the removal were assumed by the company. Destruction or loss caused to the property by the removal would not be regarded as tortious if it was necessary to the protection of the property of the company or the safe operation of the road.—Yazoo & M. V. (Miss.), 74 So., 688. Decided April 9, 1917.

Recent Decisions Under the Federal Employers' Liability Act

A railroad carpenter had been sent to repair a chute which supplied coal to engines engaged both in interstate and intrastate commerce. After waiting a time at the yardmaster's office to get a car of lumber shifted to the chute, he started to walk toward the chute, and was run over by the lumber car while it was being moved by a work train. The Circuit Court of Appeals, Third Circuit, held that he could not recover for his injuries under the act.—Kelly v. Pennsylvania, 238 Fed., 95.

The Indiana Appellate Division holds that while empty freight cars have an interstate character while having an interstate movement, this movement ceases when they reach the first distributing point in the State of their destination; and a brakeman injured while switching them after such movement ceases was not injured in "interstate commerce." Chicago & Erie (Ind.), 114 N. E., 659.

A freight conductor whose usual run was from Wichita to Durand and return came to Durand in the morning, registered in the rest book, and went to bed in the caboose, as he had done for 14 years. In the evening, while he was dressing, preparatory to going to eat and report for duty, the crew making up his train moved certain cars, part of them interstate, against the caboose so violently as to injure him. The Kansas Supreme Court holds that he was not at the time engaged in interstate commerce within the act.—Burnstead v. Missouri Pacific (Kan.), 162 Pac., 347.

The Kansas City Court of Appeals holds that a switchman who was killed in switching a car to take it to another place to be loaded with an interstate shipment was killed while engaged in interstate commerce.—Christy v. Wabash (Mo.), 191 S. W., 241.

The Mississippi Supreme Court holds that a railroad carpenter who was killed by a train as he went across the track to buy a newspaper was not then engaged in interstate commerce.—Illinois Central v. Archer (Miss.), 74 So., 135.

The Wisconsin Supreme Court holds that an employee in car shops, whose duty it is to keep account of cars, many of which are engaged in interstate commerce, who is fatally injured after he has discharged all his duties for the day, turned in his report, and left the last place at which any of his duties were to be performed, is not engaged in interstate commerce. Jacoby v. C. M. & S. P. (Wis.) 161 N. W., 751.

Injuries were sustained by a member of a train crew which was subject to call for an interstate trip, but which had not been called for service, and which occupied, merely for their own convenience, a caboose, which was being moved by a transfer train between local stations. The Circuit Court of Appeals, Seventh Circuit, holds that the injured man was not employed in interstate commerce so as to make the railroad liable under the act.—Pryor v. Bishop, 234 Fed., 9.

The Kentucky Court of Appeals holds that an employee who was killed in unloading material from a car in the railroad's yards, a week after removal from the scene of the wreck of an interstate train, that it might be separated in parts for other employees to later inspect and determine what should be repaired for future use, was not engaged in interstate commerce.—Schaeffer v. Illinois Central (Ky.), 189 S. W., 237.

The Mississippi Supreme Court holds that a mechanic and a car repairer employed in a railroad's machine shop in the state, directed to remedy a defectively loaded lumber car which had arrived from another state and to make the load safe, in the performance of which work the standards broke, and he was thrown to the ground and crushed by the falling piling, was not entitled to recover under the act, since the negligent loading was not the cause of the injury.—Hooks v. N. O. & N. E. (Miss.), 72 So., 147.

The Kentucky Court of Appeals holds that a "student" fireman, who received no wages or other return, except information, for his services, performed by virtue of a permit authorizing him to ride on the engine only of the defendant's trains at his pleasure, although an employee and entitled to a reasonably safe place to work in places where he must necessarily be while performing the duties contemplated by the arrangement, was not an "employee" within the act, when killed in a rear-collision while in the caboose after having abandoned his duties temporarily.—C. & O. v. Harmon's Adm. (Ky.), 189 S. W., 1135.

The Kentucky Court of Appeals holds that a man whose regular employment was working on track replacing old rails with new, etc., but who at the time of his injury was merely loading old rails lying on the right of way, was not, at that time, engaged in interstate commerce.—Cincinnati, N. O. & T. P. (Ky.), 190 S. W., 690.

UNITED STATES SUPREME COURT

Scope of Federal Employers' Liability Act

The Supreme Court of the United States holds that in interstate commerce cases the federal employers' liability act governs the liability of the carrier and the rights of the employee, and State workmen's compensation acts do not apply even when the railroad is free from negligence.

A track laborer of the New York Central assisting in the repair of the road's main track, while tamping ties, struck a pebble which rebounded and hit his eye, destroying the sight. He sought compensation under the New York Workmen's Compensation Act, and an award was made him by the commission. This was affirmed by the Appellate Division, by a divided court (168 App. Div. 351), and also by the Court of Appeals, 216 N. Y. 284. The plaintiff contended that the federal employees' liability act, though regulating the liability or obligation of the carrier and the right of the employee where the injury results in whole or in part from negligence attributable to the carrier, does not cover injuries occurring without such negligence, and, therefore, leaves that class of injuries to be dealt with by State

laws; and by the railroad it was contended that the act covers both classes of injuries and is exclusive as to both. The State decisions on the point are conflicting. The New York court in the present case and the New Jersey court in Winfield v. Erie, 88 N. J. L., 614, hold that the federal law relates only to injuries resulting from negligence, while the California court in Smith v. Commission, 26, Cal. App. 560, and the Illinois court in Staley v. Illinois Central, 268 Ill. 356, hold that it has a broader scope and makes negligence a test,—not of the applicability of the act but of the railroad's duty or obligation to respond pecuniarily for the injury.

The United States Supreme Court holds that the latter view is right and the other wrong. Whether and in what circumstances railroad companies engaging in interstate commerce shall be required to compensate their employees in such commerce for injuries sustained therein are matters in which the Nation as a whole is interested and there are weighty considerations why the controlling law should be uniform and not change at every State line. "True," the court said, "the act does not require the carrier to respond for injuries occurring where it is not chargeable with negligence, but this is because Congress, in its discretion, acted upon the principle that compensation should be exacted from the carrier where, and only where, the injury results from negligence imputable to it. Every part of the act conforms to this principle, and no part points to any purpose to leave the States free to require compensation where the act withholds it. . . . the act is as comprehensive of injuries occuring without negligence, as to which class it impliedly excludes liability, as it is of those as to which it imposes liability. In other words, it is a regulation of the carriers' duty or obligation as to both. And the reasons which operate to prevent the States from dispensing with compensation where the act requires it equally prevent them from requiring compensation where the act withholds or excludes it." New York Central v. Winfield. Decided May 21, 1917.

This point is also covered in a case against the Erie, decided the same day, in which the decision of the New Jersey Court of Errors and Appeals, 88 N. J. L. 619, referred to above, was reversed.

Enforcement of Arkansas 2-Cent Fare Statute Enjoined

The Supreme Court of the United States has affirmed the decree of the district court for the eastern district of Arkansas (222 Fed. 539) making perpetual an injunction against the enforcement of the Arkansas 2-cent fare statute of 1907.

The court said that the average haul in Arkansas is shorter than the average of the road, the density of the traffic is less and the maintenance of the road is more expensive. The district court found that the results obtained by averaging the earnings and expenses of the company in the State during four years, allocating them between the interstate and intrastate business on the basis of specific and elaborately collected reports of employees in all branches of the service during a test period of two months demonstrated that the annual net earnings of the company from all of its intrastate business were not more than 2 per cent on the agreed valuation of its property devoted to such use, all of which were produced by its passenger business. The passenger fare established by the company was 3 cents a mile, and a test of a 2½-cent fare for 18 months showed that if the statutory rate of 2 cents should be put in force, the result of the company's intrastate business would be a deficit.—Commission v. Boyle and St. Louis & S. F. Decided May 21, 1917.

Employment in Interstate Commerce

A member of a switching crew was injured while assisting in placing three cars containing supply coal for his employer, the Lehigh Valley, on an unloading trestle within its yards at Cortland, N. Y. These cars belonged to the railroad and with their contents had passed over its line from Sayre, Pa., following which they had remained on sidings in the Cortland yards for two to three weeks. It was held by the United States Supreme Court that the plaintiff was not engaged in interstate commerce when injured, and 214 N. Y. 116 was reversed.—Lehigh Valley v. Barlow. Decided May 21, 1917.

It is also held by that court that an employee in charge of a switching engine engaged in switching interstate freight, who was killed while crossing the tracks in the yard after quitting his work, was at the time engaged in interstate commerce, his act of leaving the yard being the discharge of a duty of his employment.—Erie v. Winfield. Decided May 21, 1917.

Equipment and Supplies

LOCOMOTIVES

JAYME ARTHUR MARQUES (Africa) has ordered one four-wheel locomotive from the Baldwin Locomotive Works.

THE AMERICAN STEEL & WIRE COMPANY has ordered one six-wheel locomotive from the Baldwin Locomotive Works.

THE NORTH AMERICAN SUGAR COMPANY has ordered one Mogul type locomotive from the Baldwin Locomotive Works.

THE RUSSIAN GOVERNMENT has ordered 250 Decapod locomotives from the American Locomotive Company and 250 from the Baldwin Locomotive Works.

THE MONONGAHELA RAILWAY has ordered 6 Consolidation locomotives from the American Locomotive Company. These locomotives will have 22½ by 30 in. cylinders and will be equipped with superheaters.

FREIGHT CARS

THE MICHIGAN CENTRAL is reported as inquiring for 100 underframes.

THE ATLANTIC COAST LINE is reported in the market for 100 underframes.

THE TIMBER BUTTE MILLING COMPANY, Butte, Mont., is inquiring for 6 gondola cars.

THE SOUTHERN PACIFIC has ordered 300 wooden freight cars from Twohy Brothers, Portland, Ore.

THE CHILDERS GASOLINE COMPANY, Nowata, Okla., is inquiring for 50 50-ton 8,000-gal. capacity tank cars.

THE YOUNGSTOWN SHEET & TUBE COMPANY has ordered 100 gondola cars from the Pressed Steel Car Company.

THE PHILLIPS SHEET & TIN PLATE COMPANY has ordered 20 50-ton gondola cars from the Pressed Steel Car Company.

THE RUSSIAN GOVERNMENT has ordered 5,000 four-wheel freight cars of 1,200 pood capacity from the American Car & Foundry Company and 5,000 from the Standard Steel Car Company.

MACHINERY AND TOOLS

THE ILLINOIS CENTRAL has issued inquiries for 94 machine tools.

SIGNALING

THE KANSAS CITY TERMINAL has ordered from the Union Switch & Signal Company material for an electro-pneumatic interlocking plant at the crossing with the St. Louis-San Francisco; a 67-lever machine having 48 working levers.

THE ATCHISON, TOPEKA & SANTA FE has awarded the Union Switch & Signal Company a contract to provide material for the installation of automatic block signals, between Richmond and Fresno, Cal., 192 miles. This work will include 250 style "S" signals.

THE ALABAMA & VICKSBURG has ordered from the Union Switch & Signal Company the material for automatic block signals in the vicinity of Vicksburg, Miss. Sixteen style "S" signals, with the necessary relays, controllers and other apparatus. The regular signal construction force of the railway will install the apparatus.

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company three electro mechanical interlocking machines, one to be installed at Petersburg, Pa.; 12 working levers (mechanical) and 19 electrical levers; one at Tyrone Forge, with a 12-lever mechanical machine with an electrical section of 14 working levers, and one at Eldorado, where the machine will include a four-lever mechanical frame and an electrical section consisting of five working levers.

Supply Trade News

The Barry Equipment Company, Chicago, Ill., announces that it has changed its corporate name to the Barry Company, Limited.

Gaston, Williams & Wigmore, Inc., announces the removal of its offices from the Guaranty Trust Company building to the Equitable building, 120 Broadway, New York.

The Wisconsin Bridge & Iron Company, Milwaukee, Wis., announces the removal of its contracting and engineering offices from the Colby-Abbott building to its works at North Milwaukee.

Hunley Abbott, vice-president and chief engineer of MacArthur Concrete Pile & Foundation Company, has resigned from that company to accept a position with the Bartlett Hayward Company of Baltimore, Md.

W. W. Herron has been elected vice-president of the Duncan Lumber Company, Portland, Ore., and will take charge of the Chicago office of that company. He succeeds J. L. Jackson, resigned to accept service in the officers' reserve corps of the United States army.

H. I. McMinn, formerly with the Pennsylvania Railroad has entered the service of the Franklin Railway Supply Company as shop superintendent in charge of the manufacture of the Stone-Franklin Lighting Equipment, with headquarters at Bush Terminal, Brooklyn, New York.

The Acme Supply Company changed its corporate name on June 1 to the Dunbar Manufacturing Company. The sales organization will remain substantially the same, with the exception that a new sales office has been opened at St. Paul, Minn., with Rank & Goodell as sales representatives.

J. B. Ennis, who was appointed chief mechanical engineer of the American Locomotive Company in December, 1912, was on May 24 appointed vice-president of the American Locomotive Company, in charge of engineering. Mr. Ennis has been in the service of the company since its incorporation in 1901, prior to which time he was with the Rogers and the Schenectady Locomotive works.

Robert Radford, for many years secretary and treasurer of the Standard Steel Works Company, Philadelphia, Pa., has been elected also president of the Southwark Foundry & Machine Company, Philadelphia. Mr. Radford was graduated from Girard College in 1894, and soon after went with the Baldwin Locomotive Works. In 1906 he was transferred to the Standard Steel Works in substantially the same position he now occupies, and which he will continue to fill in addition to the presidency of the Southwark Foundry & Machine Company. In an address to the Girard College Alumni, of which Mr. Radford is the president, he spoke of the strength of character of Stephen Girard, founder, and added that that great benefactor of education was "successful because he was capable." This applies with equal force to Mr. Radford. Much of the success of recent years of the Standard Steel Works Company has been due to Mr. Radford's tireless and well-directed energy. He is thus well fitted for his new executive work.

R. Radford

Westinghouse Electric and Manufacturing Company

Gross earnings of $89,539,442, with a net manufacturing profit of $17,461,690 and net income available for dividends and other purposes of $18,079,889, are reported by the Westinghouse Electric and Manufacturing Company for the fiscal year ended March 31 last. This compares with gross earnings of $50,269,239 in the preceding year and net income of $9,666,788.

The gross earnings and net incomes for the year are greatly in excess of any previous year in the company's history. Completion of large orders for munitions contributed largely to the results, although sales billed and net incomes from the regular products of the company show large gains over any preceding year.

The value of unfilled orders on March 31 last for the regular products of the company was $39,776,739, as compared with $22,097,995 on the corresponding date of last year.

Assets include cash amounting to $12,476,320, against $8,184,941 in 1916, and accounts receivable total $32,757,632, against $9,811,217. The company's total assets were increased from $82,432,946 in 1916 to $127,542,811.

Chairman Guy E. Tripp's report contains several paragraphs concerning the rifle contracts of the New England Westinghouse Company and the arrangements made with the British government relative to them. He also says that with the exception of these rifle contracts the company has no uncompleted munitions contracts for foreign governments on its books.

The Westinghouse Electric & Manufacturing Company has just announced the granting to its employees of another advance in wages, effective May 16, amounting to 10 per cent. This will affect all of the workmen in the shop and practically all of the office force, except a few of the higher salaried employees.

This is one more of a number of raises in wages granted to the workmen of the shop, which raises represent a general increase, in a period of two years, of practically 40 per cent.

The company has also subscribed for a number of Liberty Bonds, which it offers to its employees, permitting them to pay for them in small monthly or semi-monthly installments.

TRADE PUBLICATIONS

SANITARY FIXTURES FOR RAILWAY CARS.—Catalogue No. 213, recently issued by the Dayton Manufacturing Company, Dayton, Ohio, is descriptive of the line of Dayton closets, washstands, water coolers, etc., for railway passenger cars.

TOOL GRINDER.—Catalogue K-4, recently issued by the Gisholt Machine Company, Madison, Wis., describes and illustrates the Gisholt universal tool grinder. The booklet shows the advantages obtained by using the grinder and by keeping tool-post tools in a conveniently located tool room. Several of its pages show how tools are ground by the Gisholt method and a description is given of the grinders themselves.

WHAT PEACE MEANS TO STEEL TRADE.—The American Steel Export Company, New York, has issued in an attractive booklet an article by Samuel Armstrong Benner, its general manager of sales, which appeared in the Iron Trade Review of April 19, 1917. Mr. Benner, in this article, emphasizes the increased production of iron and steel which has accompanied the war, and shows that to utilize the increased output it will be necessary, after the war is ended, to encourage export business in every possible way.

CREOSOTED WOOD BLOCK FLOORS.—The Ayer & Lord Tie Company, Chicago, has recently issued a very attractive booklet that gives a brief outline of the development of wood preserving methods, in the introduction, which is followed by some very interesting data on the use of creosoted wood blocks as floors in railroad and other shops, foundries and automobile and other manufacturing plants. The booklet is illustrated with interior photographs of shops, foundries, etc., where the blocks are used for floors.

BRITISH TRAFFIC AVIATION BOARD.—H. G. Wells, who wrote the romance, "The War in the Air," will be a member of the committee which will consider the best means of turning the British flying service to commercial uses after the war. Lord Northcliffe will be chairman of the committee.

Railway Construction

ATLANTA, BIRMINGHAM & ATLANTIC.—Announcement is made that this company has definitely decided to extend its line from Waycross, Ga., to Jacksonville, Fla., 75 miles. A large terminal site has been bought in the center of Waycross and arrangements have been made for terminal property at Jacksonville.

DELAWARE ROADS.—James M. Satterfield, Dover, Del., representing Lindes & Co., Philadelphia, is back of a project, it is said, to build an electric line from Wilmington, Del., to the lower boundary of the state, about 90 miles.

GARYVILLE NORTHERN.—This company, which is building a 35-mile line from a connection with the Yazoo & Mississippi Valley, and the Louisiana Railway & Navigation Company, at Garyville, La., north to Livingston, where connection is to be made with the Baton Rouge, Hammond & Eastern, expects to begin operation of the line about August, 1917. The principal commodities the road will carry are lumber, other forest products, vegetables and fruit. W. K. Fairfield, president; E. S. McDaniel, general superintendent.

GULF, SABINE & RED RIVER.—This company is greatly enlarging its facilities at Fal, La., its northern terminus. A number of shop buildings, together with freight yards will be constructed at once. The approximate expenditure for this undertaking will be $150,000.

HOWARD TERMINAL.—This company has been organized for the purpose of building a railway several miles long on the Oakland (Cal.) water front, to connect the Western Pacific and the Southern Pacific lines. S. H. Boardman, San Francisco, and C. P. Howard, Piedmont, are the promoters.

PENNSYLVANIA RAILROAD.—A contract has been given by the Pennsylvania Railroad to George W. Rockwell, Sunbury, Pa., for the masonry work in connection with the rebuilding of a four span pin-connected through truss bridge over the Juniata river at Lewistown, Pa. This is to be accomplished by placing intermediate piers and shortening the spans. The cost of the improvements will be about $135,000.

Authority has been granted by the Pennsylvania Railroad for the construction of a small enginehouse, turntable, coal and water station, etc., for handling engines, also for a small car repair yard at Wheatland, Pa. The cost of the improvements will be about $92,000.

SAN ANTONIO, UVALDE & GULF.—This company is building a new machine and wood shop at North Pleasanton, Tex. The building will be one story high, 168 ft. by 168 ft. in area. New car sheds will be built and additional track facilities are also planned. Company forces will do the work, the cost of which is estimated at $15,000.

SEABOARD AIR LINE.—Contracts have just been let by this company for building a coach and truck shop and for an upholstery building at Portsmouth, Va. These two buildings are to replace the coach shop recently destroyed by fire. The new coach and truck shop will be 92 ft. wide by 248 ft. 6 in. long, divided in two parts by a brick firewall. The upholstery building will be 32 ft. wide by 92 ft. long. Both buildings are of the same construction and will have concrete foundations with a concrete wall 4 ft. above the floor. The structures will be wood frame with 2½-in. Hy-rib siding and will be equipped with steel rolling doors.

TUCSON, PHOENIX & TIDEWATER.—This company has been organized to construct a line from Tucson, Ariz., to Phoenix, a distance of about 120 miles. Surveys are now being made, but it is not thought that any grading will be done until after the war. J. S. Douglas, Douglas, Ariz., president, and C. C. Small, chief engineer, Jerome, Ariz.

YAZOO & MISSISSIPPI VALLEY.—A contract has been awarded to the T. S. Leake Company, Chicago, Ill., for the construction of a roundhouse, machine shop, office building, storehouse, lavatory, lumber shed, cinder pit and turntable, at Baton Rouge, La. The cost of these improvements will be $150,000.

Railway Financial News

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—This company has asked the Ohio Public Utilities Commission for authority to issue $2,370,000 5 per cent equipment notes.

DELAWARE, LACKAWANNA & WESTERN.—A suit brought by stockholders of the Morris & Essex to compel the Delaware, Lackawanna & Western to increase the annual dividend paid on the leased line has been settled by an agreement made between the company and a committee representing a majority of the Morris & Essex stockholders. Under the agreement the Lackawanna will modify the lease by making the dividend rental 7¾ per cent per annum in place of the old rate of 7 per cent, the increase to date back one year. In addition to this increase the Lackawanna agrees that it will not capitalize, by issuing bonds against them, improvements which it has made upon the Morris & Essex from 1899 to date, amounting to about $11,000,000. The parent company will also credit to construction account an item of $400,000 which has been in dispute. The agreement is subject to approval by Morris & Essex stockholders, which is expected to be easily obtained in view of the fact that the settlement is satisfactory to the committee. The suit was instituted in April, 1915, for an accounting and payment of 1 per cent extra in dividends for the years 1905 to 1914 and thereafter. When the lease went into effect in 1868 the Lackawanna guaranteed 7 per cent per annum on this stock, and 1 per cent extra in the event that 30 per cent of the gross earnings proved sufficient to pay all fixed charges and 10 per cent on the stock.

DETROIT, TOLEDO & IRONTON.—This company has asked the Ohio Public Utilities Commission for authority to issue $500,000 5½ per cent equipment notes.

INDIA CREEK VALLEY.—The controlling interest in this 23-mile line has been sold to D. B. Zimmerman, of Somerset, Pa., for $640,000. The sale was made by Harold L. Robinson, of Uniontown, Pa., and J. M. Stauffer, of Scottdale, who transferred 1,400 shares of stock to Mr. Zimmerman.

INTERNATIONAL & GREAT NORTHERN.—The Texas State Railroad Commission has set June 12 as the day for a public hearing on the application of this company for an increase of the valuation of the property, preliminary to its removal from the present receivership. Receiver James A. Baker says that about $2,000,000 has been spent in improving the roadway and other permanent improvements since the last valuation was made.

INTERBOROUGH RAPID TRANSIT.—The New York Public Service Commission for the First District has adopted an order permitting the Interborough Rapid Transit Company to sell $11,436,000 5 per cent gold bonds under the company's first and refunding mortgage dated March 20, 1913. The proceeds of the bond sale are to be utilized towards meeting increased expenditures in connection with the third tracking and extensions of the elevated railroads in Manhattan and the Bronx. The original application of the company was for $16,436,000, but $5,000,000 of this sum was not allowed at the present time for reasons advanced at length in the opinion issued by the commission.

MORRIS & ESSEX.—See Delaware, Lackawanna & Western.

AN EARLY BRITISH TUNNEL.—In the London & North-Western Railway Gazette for March appeared a very interesting technical article on the opening-out of the Lime Street tunnel, Liverpool. As built by George Stephenson, the tunnel was 2,150 yards in length. In those days the tunnel extended to a train's length of the Lime street frontage; trains were drawn up the incline to Edge Hill by means of a wire rope, and oil lamps were hung on to all the carriage doors, with the double object of lighting the carriages and preventing any venturesome passenger leaning his head out of the window. When the tunnel was opened out, which was done in the early eighties, the railway was widened to take four lines of way, and the gradients and clearances improved.—*The Engineer, London.*

Railway Officers

Executive, Financial, Legal and Accounting

W. T. Tyler, general manager of the St. Louis Southwestern, has been elected vice-president, with headquarters at Tyler, Tex.

M. M. Joyce has been appointed general attorney of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn.

G. B. Wood has been appointed assistant to the president of the Kansas City Southern and the Texarkana & Fort Smith, with headquarters at Beaumont, Texas.

C. S. Sims, vice-president of the Delaware & Hudson at Albany, N. Y., has been appointed resident vice-president, with office in Montreal, Que., and F. P. Gutelius, general manager of the Canadian Government Railways at Moncton, N. B., has been appointed vice-president of the Delaware & Hudson, in charge of the operating and traffic departments, with office at Albany, N. Y., succeeding Mr. Sims.

Edward J. White, whose election as vice-president and general solicitor of the Missouri Pacific Railroad, the successor of the Missouri Pacific Railway and the St. Louis, Iron Mountain & Southern Railway, was announced in the *Railway Age Gazette* of May 25, was born at St. Louis, Mo., on February 11, 1869. He was educated at the University of Arkansas and the University of Missouri and entered railway service in 1903, as assistant attorney of the St. Louis, Iron Mountain & Southern at Aurora, Mo. From April, 1911, to September, 1914, he was general attorney of the Missouri Pacific in Jackson county, Missouri, with headquarters at Kansas City, Mo. He was then appointed general solicitor of the Missouri Pacific and the St. Louis, Iron Mountain & Southern, with headquarters at St. Louis, Mo. As vice-president and general solicitor he will continue to have headquarters at St. Louis.

E. J. White

Operating

C. McDaniel has been appointed acting car accountant of the Georgia Southwestern & Gulf, with office at Albany, Ga., vice J. J. Harris.

C. E. Smyer has been appointed trainmaster of the Western division of the Atchison, Topeka & Santa Fe, with headquarters at Dodge City, Kan.

C. L. Leighty has been appointed superintendent of telegraph, Ontario division of the Caadian Pacific, with office at Toronto, Ont., succeeding H. J. Lillie, assigned to other duties.

E. D. Woodcock, trainmaster of the Great Northern at Whitefish, Minn., has been appointed superintendent of the Havre division, with headquarters at Havre, Mont., effective June 1.

George H. Schleyer, vice-president and general manager of the Fort Worth & Rio Grande, with headquarters at Ft. Worth, Tex., has been appointed general superintendent of the first district of the St. Louis-San Francisco, with headquarters at Springfield, Mo., in place of T. B. Coppage, who has been transferred to Ft. Worth, in place of Mr. Schleyer.

R. L. Ruby, assistant superintendent of the Southern Pacific at San Francisco, Cal., has been appointed acting superintendent of transportation, succeeding G. F. Richardson, granted leave of absence to serve on the Car Service Commission of the Special Committee on National Defense of the American Railway Association. Mr. Ruby will continue to perform his duties as assistant superintendent of transportation.

The Fitchburg division of the Boston & Maine, on June 1, was divided at the west end of Deerfield river bridge, East Deerfield, Mass., into two operating divisions. The lines east of that point will continue to be known and operated as the Fitchburg division, under the jurisdiction of Frank H. Flynn, superintendent, with office at Greenfield, Mass. The lines west will be known and operated as the Berkshire division, under the jurisdiction of John D. Bourne, who has been appointed superintendent, with office at North Adams, Mass.; A. A. McCarthy, trainmaster of the east end of the Fitchburg division at Boston, has been selected as operating representative of the railroad with headquarters at Ayer, Mass., and will assist the military authorities in the development of a concentration camp at Ayer.

David M. Perine, who has been promoted to the personal staff of the general superintendent of the New Jersey division of the Pennsylvania Railroad, with office at New York, as has already been announced in these columns, was born on February 13, 1869, at Baltimore, Md. He was educated in the schools of his native town and also took a full course in mechanical drawing and designing at the Maryland Institute. On May 14, 1888, he entered the service of the Pennsylvania Railroad as an apprentice at the Mount Vernon shops of the Northern Central, and completed his apprenticeship at the Altoona shops. In April, 1894, he was appointed assistant road foreman of engines on the Pittsburgh division, and on August 1, 1895, was promoted to assistant master mechanic of the Altoona Machine Shops. In March, 1899, he was appointed assistant engineer of motive power of the Northern Central and the Philadelphia & Erie, and in March, 1900, was transferred to Altoona as assistant engineer of motive power of the Pennsylvania Railroad division. He was promoted to master mechanic of the Pittsburgh division on October 1, 1901, and on August 1, 1903, was transferred to West Philadelphia as master mechanic of the West Philadelphia shops. On April 1, 1906, he was promoted to superintendent of motive power of the Northern Central and the Philadelphia & Erie, and on April 1, 1907, was transferred to Pittsburgh as superintendent of motive power of the Western Pennsylvania division. On January 1, 1912, he was transferred to New York as superintendent of motive power of the New Jersey division, and the West Jersey & Seashore, which position he held until his recent promotion to the personal staff of the general superintendent of the New Jersey division, as above noted.

D. M. Perine

Traffic

David L. Ewing, assistant general freight agent of the St. Louis-San Francisco, has been appointed director of traffic of the United States Shipping Board with headquarters at Washington.

T. B. Akridge, has been appointed general freight and passenger agent of the Georgia Southwestern & Gulf, and general freight and passenger agent of the Valdosta, Moultrie & Western, with office at Albany, Ga., and W. C. Reynolds, traffic manager of the Valdosta, Moultrie & Western, having been assigned to other duties, the office of traffic manager has been abolished.

Frank Jensen, whose appointment as assistant general passenger agent of the Texas & Pacific, with headquarters at Dallas, Tex., has already been announced in these columns, was born at Ulysses, Neb., on July 21, 1877. He entered railway service

on March 25, 1890, as a messenger for the Chicago, Rock Island & Pacific at El Reno, Okla. He subsequently held various positions in the local freight office at El Reno and was transferred to Bowie, Tex., in January, 1896, as cashier and operator for the Chicago, Rock Island & Gulf. In October of that year he was advanced to chief clerk in the general passenger office, and in July, 1913, he went to the Texas & Pacific as chief clerk in the general passenger office at Dallas, which position he held until his recent appointment as assistant general passenger agent, as above noted.

George D. Hunter, whose appointment as passenger traffic manager of the Texas & Pacific, with headquarters at Dallas, Tex., has already been announced in these columns, was born at Bloomington, Ind., on April 18, 1867, and began railway work in 1886 as a clerk in the division roadmaster's office of the Southern Pacific at El Paso, Tex. He was later successively station baggage master and ticket clerk at El Paso until August, 1887, when he went to the Mexican Central as clerk in the material department. From August, 1887, to May, 1889, he was city ticket agent of the Texas & Pacific at El Paso, and from June, 1889, to December, 1890, ticket agent of the International & Great Northern and the Missouri, Kansas & Texas at Taylor, Tex. He was then made city passenger and ticket agent of the International & Great Northern at Houston, Tex., and in August, 1905, he was promoted to assistant general passenger and ticket agent. He became general eastern traffic agent at New York in December, 1907, and in June, 1911, was also made general eastern traffic agent of the Texas & Pacific. On October 1, 1911, he was appointed general passenger agent of the Texas & Pacific at Dallas, Tex., from which position he is now promoted to passenger traffic manager.

G. D. Hunter

Engineering and Rolling Stock

O. E. Maxwell has been appointed road foreman of engines of the Pennsylvania Lines at Ft. Wayne, Ind., in place of J. H. Hanna, transferred.

Arthur Krohn has been appointed assistant superintendent of motive power of the Missouri, Kansas & Texas, with headquarters at Parsons, Kans.

A. E. Voight, assistant electrical engineer of the Atchison, Topeka & Santa Fe, has been appointed electrical engineer, with headquarters at Topeka, Kan.

E. H. May, assistant division engineer of the Pennsylvania Lines at Logansport, Ind., has been transferred to Ft. Wayne, Ind., succeeding H. T. Sympson, transferred.

Irving Anderson, office engineer of the Atchison, Topeka & Santa Fe at Chillicothe, Mo., has been appointed acting division engineer of the Missouri division, with headquarters at Marceline, Mo., succeeding W. C. Baisinger, who has been appointed assistant engineer in the construction department, a newly created position, with headquarters at Chicago.

John T. Nagel has been appointed chief engineer of the Louisiana & Pine Bluff, with headquarters at Huttig, Ark. He was born at Hamburg, Germany, and began railway work in April, 1901, as timekeeper on betterment work for the Rock Island & Peoria. He subsequently engaged in private engineering practice at Davenport, Iowa, and later became connected with the Nacogdoches & Southeastern at Nacogdoches, Tex., where he had charge of location and construction work. He has since been in charge of other engineering work for that road at various times and has also had charge of the location and construction of short stretches of other saw-mill roads, including the Texas Southeastern, the Groveton, Lufkin & Northern, the Freeo Valley and the Mansfield Railway & Transportation Company.

H. R. Gibson, division engineer of the Baltimore & Ohio Southwestern at Seymour, Ind., has been promoted to district engineer maintenance of way, with headquarters at Cincinnati, Ohio. A. H. Freygang, assistant engineer, office of the engineer maintenance of way, Baltimore & Ohio Western lines, has been promoted to division engineer, with headquarters at Seymour, Ind. R. W. Gabriel, assistant engineer, office of district engineer maintenance of way, of Baltimore & Ohio Southwestern, has been promoted to assistant engineer, in the office of engineer maintenance of way, Baltimore & Ohio western lines, with office at Cincinnati, Ohio. A. M. Davidson, assistant division engineer of the Cincinnati, Hamilton & Dayton at Dayton, Ohio, has been appointed assistant engineer in the office of the district engineer maintenance of way, Baltimore & Ohio Southwestern, at Cincinnati, Ohio. C. G. Stewart, assistant supervisor at Walkerton, Ind., has been appointed assistant engineer in the office of district engineer maintenance of way, Baltimore & Ohio Southwestern at Cincinnati, Ohio.

J. L. Cunningham, who has been appointed superintendent of motive power of the Western Pennsylvania division of the Pennsylvania Railroad, with office at Pittsburgh, Pa., as has already been announced in these columns, was born on September 28, 1874, at West Fairfield, Pa. He entered the service of the Pennsylvania Railroad on November 13, 1891, as an apprentice in the Altoona machine shop. He was made machinist on February 1, 1896, and in August of that year resigned from the service. In June, 1900, he returned to the service of the Pennsylvania Railroad as machinist in the Altoona machine shop, and the following month was transferred as inspector to the Philadelphia division. On March 1, 1901, he was transferred to the Pittsburgh division in the same capacity, and in December, 1902, was made foreman on the Bedford division. One year later he was appointed assistant master mechanic on the Philadelphia division. In January, 1904, he became general foreman, and in August, 1906, was appointed assistant engineer of the Central division. He was promoted to master mechanic of the Maryland division on July 1, 1913, and three years later was transferred to the Philadelphia division in the same capacity, which position he held at the time of his recent appointment as superintendent of motive power of the Western Pennsylvania division, as above noted.

J. L. Cunningham

J. H. Reinholdt, formerly principal assistant engineer of the Minneapolis & St. Louis, has been appointed chief engineer, with headquarters at Minneapolis, Minn., to succeed R. G. Kenly, promoted. Mr. Reinholdt was born at Manning, Iowa, on November 23, 1883, and graduated from Lafayette College, Easton, Pa., in 1906. From 1901 to March, 1903, he was rodman on construction for the Chicago Great Western, and from the latter date to September, 1903, was with the New York Central Lines on location work in western Pennsylvania. The following three years he was in college. After graduation he was for one year with the Easton Transit Company as assistant engineer. From June, 1907, to April, 1909, he was with the Lehigh Valley as assistant engineer and roadmaster, and from the latter date to February of this year he was with the Minneapolis & St. Louis successively as assistant engineer, roadmaster and principal assistant engineer. He then became roadmaster for the Kansas City Terminal Railway, which position he held at the time of his

recent appointment as chief engineer of the Minneapolis & St. Louis.

F. Ringer, engineer maintenance of way of the Missouri, Kansas & Texas, with headquarters at Parsons, Kan., has been appointed chief engineer, with headquarters at Dallas, Tex., succeeding L. F. Lonnbladh, resigned. He graduated from the engineering school of the Kansas State University in 1893, and began railway work in June, 1894, as levelman with the Missouri, Kansas & Texas, with which road he has remained ever since. In May, 1895, he was made office engineer in the chief engineer's office; from June, 1902, to April, 1905, he was assistant engineer in charge of surveys for revisions of line and grade, and from the latter date until February, 1906, was resident engineer in charge of maintenance of way. He was then promoted to principal assistant engineer in charge of revisions of line and grade, and in August, 1911, was appointed assistant chief engineer. One year later he became engineer maintenance of way, and in March, 1913, was made superintendent of the McAlester district, in charge of transportation and maintenance of way. In October, 1914, he was appointed engineer maintenance of way, with headquarters at Parsons, Kan.

C. D. Young, who has been appointed superintendent of motive power of the Philadelphia, Baltimore & Washington, with headquarters at Wilmington, Del., as has already been announced in these columns, was born on May 19, 1878, at Washington, D. C., and on June 25, 1900, entered the service of the Pittsburgh, Cincinnati, Chicago & St. Louis as a special apprentice. In July, 1903, he was promoted to erecting gang foreman, and on October 16, 1903, he became machine foreman. He was promoted to assistant motive power inspector on January 1, 1905, serving in that capacity until May 1, 1906, when he was transferred to the Pittsburgh, Fort Wayne & Chicago as assistant master mechanic. In September, 1906, he returned to the Pittsburgh, Cincinnati, Chicago & St. Louis as assistant engineer of motive power, and on June 1, 1910, assumed that office under the general superintendent of motive power of the Pennsylvania Lines West of Pittsburgh. On October 1, 1911, he became engineer of tests in the office of the general superintendent of motive power of the lines east, and on May 9, 1917, was promoted to superintendent of motive power of the Philadelphia, Baltimore & Washington, as above noted.

C. D. Young

James Milliken, who has been promoted to special engineer in the office of the general superintendent of motive power of the Pennsylvania Railroad, Lines East of Pittsburgh and Erie, with office at Altoona, Pa., as has already been announced in these columns, was born on February 19, 1865, in Newtown, Bucks county, Pa. He was educated in the Philadelphia schools and also took a partial course at the University of Pennsylvania. On September 6, 1885, he entered the service of the Pennsylvania Railroad as a fireman on the Pittsburgh division and in March of the following year was transferred as an apprentice to the Altoona machine shop. After serving his apprenticeship he became assistant road foreman of engines on the Philadelphia and Pittsburgh divisions. In February, 1892, he was appointed assistant master mechanic at the Altoona machine shops; in 1895 he was appointed assistant engineer of motive power of the Philadelphia, Baltimore & Washington, and later served in a like capacity on the New Jersey division. He was appointed master mechanic at the Mount Vernon shops, Baltimore, Md., in August, 1900, and was promoted to superintendent of motive power of the Philadelphia, Baltimore & Washington in January, 1903, and now becomes special engineer in the office of the general superintendent of motive power, lines east of Pittsburgh and Erie, as above noted.

Railway Officers in Military Service

G. H. Webb, chief engineer of the Michigan Central, has been recommended for lieutenant colonel in the Sixth Railway regiment, the construction regiment with headquarters at Detroit, Mich.

L. T. M. Ralston, assistant engineer on the Chicago & Eastern Illinois at Evansville, Ind., at Fort Benjamin Harrison, Ind., has entered the Officers' Reserve Corps training camp.

Major Charles Hine, who has been engaged in special work on the staff of President Willard of the Baltimore & Ohio, has been appointed commander of field trains of the New York Division of the National Guard, with rank of colonel.

Carl M. Maloney, trainmaster of the Oregon-Washington Railway & Navigation Company at Wallace, Idaho, has been accepted as a candidate for a commission as lieutenant in the Officers' Reserve Corps of the United States army at San Francisco, Cal.

J. M. Walsh, terminal superintendent of the Illinois Central at Memphis, Tenn., has been appointed captain of the Illinois Central company of the Chicago railway regiment, now being organized under the direction of S. M. Felton, president of the Chicago Great Western.

N. R. Markle, commercial agent of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Kansas City, Mo., has been granted leave of absence to accept a commission as captain in the quartermaster's reserve corps, United States army, with headquarters in the same city.

A. L. Bartlett, track supervisor of the New York, New Haven & Hartford, was called to active service on May 1 as a member of the Rhode Island State Militia. R. M. Lawton, construction engineer, left the service of the New Haven on May 15 to serve in the Engineering Regiment at Plattsburg, and Frank P. Paten, general yardmaster, has been relieved from railroad duties and has been appointed captain to recruit a company of railroad men, to be sent to France as part of the nine regiments being formed for that purpose.

W. S. Emley, assistant engineer of the Gulf, Colorado & Santa Fe, was called in army service on May 9, as first lieutenant in the Officers' Reserve Corps, United States army, at Leon Springs, Tex. G. A. Knapp, office engineer, was called into service on May 16, as a captain in the Officers' Reserve Corps, with headquarters at Leon Springs, Tex. James Vawter, assistant engineer, left railway service on May 16, to enter the Officers' Reserve Corps at Leon Springs, Tex., as a first lieutenant. R. E. Butcher, assistant engineer, entered the United States navy on May 16, with the rank of ensign.

Hal S. Ray, assistant general passenger agent of the Rock Island Lines, at Des Moines, Iowa, has received an appointment as captain in the Quartermaster Officers' Reserve Corps and has been stationed at Omaha, Neb.; Paul Hevener, superintendent of the insurance department at Chicago, is now in the officers' training camp at Fort Sheridan. J. G. Roberts, fuel inspector at Des Moines, is now in the training camp at Fort Sheridan. H. T. Livingston, assistant engineer at Cedar Rapids, is now in the training camp at Fort Snelling, and Dr. S. C. Plummer, chief surgeon at Chicago, has received an appointment as captain in the Medical Reserve Corps.

OBITUARY

Arnold Kalman, formerly a director of the Chicago Great Western, died at St. Paul, Minn., on May 22, aged 72 years.

R. F. Waterhouse, general freight agent of the New York, Ontario & Western, died on May 26 at his home in Princeton, N. J.

Edward B. Hutchinson, formerly general claim agent of the Pennsylvania Lines West of Pittsburgh, with headquarters at Indianapolis, Ind., died at his home in that city, on May 22, aged 76 years.

M. A. Pheney, assistant superintendent of the Fourth division of the Denver & Rio Grande, with headquarters at Durango, Colo., was shot and killed in his office on May 22 by a former employee of the road.